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OLD AND YOUNG TEACHERS

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In 1903 Dr. G. Stanley Hall, issued the following questionnaire:

I. State characteristic differences between very young and very old teachers of any grade from kindergarten to university.

II. Would you establish age limits either way and, if so, what and why?

III. What are the effects of continuous teaching on the different sexes in (a) health, (b) temper, (c) devotion to methods, (d) open-mindedness and readiness to accept and adopt new ideas?

IV. What physical, mental, and moral idiosyncrasies tend to increase with age?

V. Do older teachers tend to lose contact and sympathy with children or young people?

VI. Nature provides that parents of 25-35 years more easily adjust to younger children than those of 40-50 years. Can older teachers fit more readily the nature and needs of older children, and vice-versa, irrespective of increased mental attainment?

VII. Mere age and years bring an unique psychic development apart from increase in learning. Does this tend to qualify or disqualify schoolwork with any age or grade of childhood, or is there a "teaching age"?

VIII. Describe as fully as you can a typical male or female teacher of mature years who has steadily grown in knowledge and power.

IX. Describe a typical teacher of mature age who has long since ceased to grow, but has become stereotyped in opinion and method, prejudiced, and neophobic, and illustrate the bad effect of teaching.

X. List a few suggestions to aid teachers in conserving the period of rapid growth and in avoiding the evil of monotony repetition, routine and mechanism.

The returns were carefully tabulated by Miss Louise Gulick, a fact which has largely made this paper possible. One normal school furnished a great part of the replies—about eighty papers—to questions I, VIII, and IX.

Two hundred thirty-one answers were received to question number I, "State characteristic differences between very young and very old teachers of any grade from kindergarten to university." The positive and negative qualities mentioned may be tabulated thus:

POSITIVE QUALITIES			
Young Teachers		Old Teachers	
	No. of replies		No. of replies
a. More enthusiasm, animation, and interest in work	60	More interest in work	2
b. More ambitious, active, progressive, and amenable to suggestion	59	Have purpose and intelligence to plan interesting work	32
c. More sympathy with, and better liked by pupils . . .	75	More sympathy with and better liked by pupils . . .	6
d. More up to date. Methods better	25	More experienced, using more practical, and better methods	64
e.		More knowledge of human nature especially of children	31
f.		Better knowledge of subject matter	22
g.		More conservative and stable	10
h.		Inspire confidence and respect	6
i. Attend details of work better	1	Attend details of work better	12
j. More patient	11	More patient	11
k. More cheerful	6		

NEGATIVE QUALITIES			
1.		Set in opinion, fixed in method, resent suggestions for improvement	131
m. Exacting, cross, demands unreasonable, over-strict	37	Exacting, cross, cranky, sarcastic, unreasonable in demands, too strict	39
n. Lacking in self-confidence, nervous, worry, upset by trifles	64	Nervous, upset by trifles . . .	9

NEGATIVE QUALITIES—*Continued*

Young Teachers		Old Teachers	
	No. of replies		No. of replies
o. Vacillating in method, obliged to experiment.	58		
p. Poor disciplinarians	59	Lax, easily "worked," poor disciplinarians	26
q. Plan ineffectively through uncertainty about purposes of teaching	19		
r. Frivolous, not serious....	15		
s. Do not study individuals	3	Do not study individual pupils	2
t. Less ready to acknowledge mistakes	1	Less ready to admit errors..	3
u. Self-satisfied, conceited...	1	Self-satisfied, conceited	6
v.		Personally unattractive, oddities of dress and manners	11
w. More likely to be partial..	1	More likely to show partiality	1

The above table attributes to very young teachers two hundred and thirty-seven mentions of positive qualities, and two hundred and fifty-eight for negative qualities, while the very old teachers are credited with one hundred and ninety-six answers for positive, and two hundred and twenty-eight for negative qualities. Both young and old are invested, therefore, more often with negative than with positive qualities and youth has listed both positive and negative slightly more frequently than has age, suggesting that both favorable and unfavorable traits are more marked in youth than in age.

A FEW OF THE REPLIES TO QUESTION I

F. 19. The young teacher has other interests which keep her bright and cheerful and she brings this into the school-room, while an old teacher usually has some care which shows itself and influences the school-room.

F. 23. Young teachers are often very enthusiastic without being practical. They become enthusiastic over some idea and strive to carry it out whether conditions are favorable to it or not. Older teachers do more planning. They do not rush headlong into a matter until they have decided that the act is a wise one and until they feel sure of good results.

Very young teachers are apt to judge from outside appearances, while an older teacher searches the matter out and forces no conclusions until she is certain of the causes of an act.

Young teachers lose their tempers and become nervous at little things. Older teachers have better power of control, because of experience.

Young teachers are very sympathetic and apt to be rather vacillating in their control of children. Sometimes they are so lenient that the children get the upper hand and in order to overcome this tendency they are over-strict for a few days and vice-versa.

F. 20. Two teachers, one about forty-five years of age, with twenty-two or twenty-four years of experience, the other, about twenty-five years of age with two years experience. The older teacher is physically unable to teach, yet she keeps going. She has order in her school because she rules with an iron rod. The children are held down to work with no freedom for individual action. They must act as a machine. She has for years taught by the same method, the same thing, and the children get no new ideas from her. All the life has been taken out of her by her years of work and she has no ambition to renew it. Older teachers are, as a rule, careless of appearance and this does not appeal to children.

The younger teacher is careful of appearance, bright, and entertaining, rules by love and kindness rather than by harsh treatment. She is nearer the age of the child itself and can enter into the plays and can more easily see things from the child's standpoint.

F. 40. Young teachers are more or less nervous during the first month of teaching, owing to lack of assurance in power to maintain order, etc.

Old teachers have self-assurance and consequently are not inclined to be nervous; at least from the standpoint of the young teacher.

Young teachers are more liable to over-tax their strength in the persistence of effort to bring pupils up to a given standard, than are old teachers, who are able to give to their effort a better direction with less outlay of nervous force. Experiences of life bring lessons which no amount of book-study brings.

Young teachers are not so likely to take into consideration individual characteristic of pupils as are old teachers.

Young teachers often enter into the spirit of play and fun more than old teachers, but not always.

For my own children, other things being equal, I prefer the old teacher to the young one.

The answers to question I fall quite naturally into three groups: the first includes those qualities attributed to very young teachers only; the second, those ascribed to very old teachers only; and the third, those qualities common to both very young and very old teachers.

According to these returns only the very young teacher is

ambitious, active, progressive, amenable to suggestion, and cheerful, while the faults of the very youthful pedagogue, never ascribed to the very old ones, are vacillation of method and experimentation, ineffective planning through uncertainty of the purpose of teaching, frivolousness, lack of seriousness.

The very old teacher is endowed, exclusively, by these replies, with purpose and intelligence to plan interesting work, with more knowledge of subject-matter, conservatism, stability, and ability to inspire respect and confidence; the negative qualities possessed by this group only are designated as setness in opinion, fixedness in method, resentment of suggestions for improvement, personal unattractiveness, and peculiarity of dress and manner.

The returns allowed the very young and the very old teachers to share, though by no means equally, in the other qualities mentioned. The very youthful instructor is said to show more interest in her pupils and to be more sympathetic with, and better liked by them. In these respects youth scores heavily over age which, however, shows some slight superiority in attending to details of the work. The crown of patience was awarded to neither as youth and age received equal honors in this as in the matter of being cross, exacting, unreasonable in demands, and over-strict. There were but negligible differences noted between them on points of studying the individual, readiness to acknowledge mistakes, display of partiality. Young teachers are found to be much more prone to lack of self-confidence, nervousness, worry and concern over trifles, and are rated substantially lower than old teachers as disciplinarians.

The major point of these answers is the startling indictment of the very old teacher for setness in method, fixedness in opinion, and resentment of suggestions for improvement which establishes a difference noted nearly twice as often as the next in numerical sequence, the more abounding sympathy and likability of the very young teacher.

This contrast leads to the question of the nature of the faults and the merits of both groups of teachers. Everyone is endowed with certain traits quite apart from capacity for work and aptitude in any line of endeavor and, on this basis, classification of the qualities of teachers—in so far as they can be judged from the material at hand—is possible. The former have to do with the disposition of the pedagogue, his relations and reactions to his pupils; the latter deal with his relations to his work, his mental attainments, handling of subject-matter of the class-room, method, etc.

For very young teachers the positive qualities, a, b, c, j, k,

may be considered dispositional qualities, while d, and i, may be designated as mental qualities. Accordingly, 211 answers testify to the positive dispositional qualities of young teachers and twenty-six to their positive mental qualities.

For very old teachers a, c, g, h, and j, can be classed as positive dispositional qualities and we find that these are mentioned 35 times as against 161 citations of the positive mental qualities represented under b, d, e, f, i.

The deduction is, of course, that the merits of very young teachers lie in the realm of disposition as contrasted with those of very old teachers whose mental excellencies are preponderant.

Continuing this line of division into the section of the negative qualities, l, m, n, p, r, s, t, u, v, w, are dispositional and o, and q, are mental.

For dispositional failings the very young teacher is arraigned 181 times, for negative mental qualities seventy-seven times; two hundred and twenty-eight voices acclaim the negative dispositional qualities of the very old teacher who may, however, take some comfort in the fact that there was not even a faint murmur of accusation against him for shortcomings on the side of mental attainments.

Tabulated, this information assumes the following form:

<i>Positive Qualities</i>	Very Young Teachers No. of Replies	Very Old Teachers No. of Replies
1.) Dispositional	211	35
2.) Mental	26	161
<i>Negative Qualities</i>		
1.) Dispositional	181	228
2.) Mental	77	0

Thus the dispositional positive qualities of youth slightly overshadow its dispositional faults, but its negative mental qualities are noted nearly three times as frequently as its positive mental qualities.

For the very old teacher, however, the glory of his mental superiority is somewhat tarnished by his dispositional lapses which are mentioned nearly eight times as often as are the dispositional virtues of age.

Furthermore, on the basis of the above classification, the positive qualities monopolized by the very young teachers are dispositional, and three out of the five ascribed to the very old teachers are mental.

The negative qualities attributed solely to very young teachers are mental in two of the three points mentioned and those with which the very old teachers only are invested are

both dispositional. Numerically the ratio for both positive and negative qualities of this sort is as follows:

TRAITS MONOPOLIZED BY VERY YOUNG AND BY VERY OLD TEACHERS

VERY YOUNG TEACHERS		VERY OLD TEACHERS	
<i>Positive Qualities</i>		<i>Positive Qualities</i>	
	No. of Replies.		No. of Replies.
Dispositional { b)	59	Mental { b)	32
{ k)	 6	{ f)	22
		{ e)	31
	65		
			85
		Dispositional { g)	10
		{ h)	 6
			16
VERY YOUNG TEACHERS		VERY OLD TEACHERS	
<i>Negative Qualities</i>		<i>Negative Qualities</i>	
Mental { q)	19	Dispositional { l)	131
{ o)	58	{ v)	11
	77		142
Dispositional r)	15		

The above indicates clearly that each group is isolated in the possession of certain dispositional merits and failings; but some negative mental qualities are thought characteristic of only very young teachers, while the very old teachers, exclusively, are invested with certain mental excellencies.

The two most notable deductions from this classification are that the pre-eminent weakness of the very young teacher rests predominantly in the domain of mental attainment, and that of the very old teacher in the realm of dispositional qualities, while the strength of the former is dispositional and that of the latter mental.

These figures are interesting from another point of view, also, as they suggest that dispositional qualities, either good or bad, are much more impressive than mental qualities of either sort. Six hundred and fifty-five answers noted dispositional qualities, but only two hundred and sixty-four mentioned mental qualities, praiseworthy or otherwise.

Since disposition leaves so deep an impression, and both very young and very old teachers are guilty of marked defects in this connection, the question arises as to whether there should be age limits for teaching and, if so, what and why.

Under topic II of the questionnaire this query received one

hundred and sixty-five answers. Five were unwilling to decide, thirty-five answers were negative, and one hundred and twenty-five were affirmative.

AFFIRMATIVE REPLIES

		No. of Replies
No age limit stated		8
Lower Age-Limit to Upper Age-Limit		No. of Replies
16 or 17 years.....	none.....	3
18.....	".....	23
19.....	".....	3
20.....	".....	11
21.....	".....	2
22.....	".....	1
16.....	60.....	1
16.....	65.....	1
18.....	50.....	10
18.....	60.....	4
18.....	70.....	1
19.....	65.....	1
20.....	30.....	1
20.....	35.....	1
20.....	40.....	1
20.....	45.....	1
20.....	50.....	4
20.....	55.....	1
20.....	60.....	30
21.....	28.....	1
21.....	40.....	1
21.....	45.....	1
21.....	65.....	1
25.....	35.....	1
25.....	50.....	1

WOMEN

MEN

Lower-Limit to Upper-Limit		Lower-Limit to Upper-Limit		No. of Replies
18.....	50.....	None.....	None.....	1
18.....	None.....	21.....	".....	1
20.....	40.....	20.....	".....	1
20.....	55.....	20.....	".....	1
18.....	35.....	18.....	50.....	1
18.....	55.....	19.....	60.....	1

FOR GRADES

ABOVE THE GRADES

18.....	40.....	None.....	None.....	2
18.....	45.....	".....	".....	1
19.....	35.....	".....	".....	1

KINDERGARTEN AND
PRIMARYGRADES AND HIGH
SCHOOLUNIVERSITY OR
COLLEGE

Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	
17.....	23.....	25.....	40.....	40.....	55..	1

SOME REPLIES TO QUESTION II

F. 24. I do not think that a *rigid* age limit should be established. It might exclude some very excellent teachers and might discourage anyone from entering the profession, if he could not teach until he had reached a certain age.

M. 27. No maximum limit, because it will be difficult for an old teacher to get a position in the future unless he does keep up with the work and the times, and an old teacher that does keep up has better judgment and should be wiser in his administrations.

F. 21. I would establish age limits both ways, twenty-five years as a beginning, thirty years as quitting time. Usually five years of teaching wear a teacher out physically. I said from twenty-five to thirty because, at the present rate of living, a woman is at her best at this period of life.

M. 27. I would certainly establish age limits, but a far better criterion would be ability and disposition. Since, however, the profession of teaching is controlled by law, there should be a minimum age limit, and for the maximum let the district interested determine this.

Those who defined limits are grouped thus:

1.) Those who favored a lower, but no upper limit	51
2.) Those who favored both an upper, and a lower limit	63
3.) Those who thought that men and women should have different limits	6
4.) Those who based the age-limit requirement on the age of the pupils taught	5

REASONS GIVEN FOR AFFIRMATIVE

Unfavorable characteristics of very old and of very young teachers, as noted under topic I. (The number of replies to this effect were omitted in Miss Gulick's tabulation, but she said elsewhere that these furnished the greater number of reasons.)

If teaching is begun, there is danger of becoming old in character and health before one's time	5
Seven to ten years of teaching wear a person out	2
There is an over-supply of over-young teachers	1

NEGATIVE REPLIES

Negative replies	No. of Replies 35
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REASONS FOR NEGATIVE REPLIES

Individuals differ too greatly	25
Some of our best teachers are above the age at which most teachers should retire	9
A really good teacher retains her ability even in old age	4

Universities need their older teachers to continue their own re- searches	I
Young teachers must support themselves	I
Old teachers would find it difficult to get other occupation	I
Limit is not needed, for unfit teachers will not get positions in an over-crowded profession	I
There should be a health requirement, not an age requirement....	I
Teachers seldom do begin too soon, and usually stop too soon, any- way	I
There should be a higher all round requirement	I
People would not enter the profession if they did not enter young	I

Since the majority of the replies stated that there should be age-limits, determination of the most favored upper and lower ones may be based on the following table of totals:

LOWER LIMIT		UPPER LIMIT	
	No. of Replies		No. of Replies
None	5	None	51
16 or 17 yrs.	6	23	I
18	45	(kindergarten)	
19	5	28	I
20	52	30	I
21	6	35	4
22	I	40	6
25	3	(including I for grades and high school)	
(including I for grades and high school.)		45	3
40	I	50	17
(for college and univer- sity)		55	4
		(including I for univer- sity)	
		60	36
		65	3
		70	I

Accordingly, the advisable lower limit is twenty, or possibly eighteen, and the proper upper limit, if any, is sixty years. The favorite span noted is very markedly twenty to sixty years.

Miss Gulick, who had access to all of the returns, says, "That the matter is largely individualistic, nearly everyone agreed who had comments to make. The reasons for establishing age-limits were mainly references to the negative characteristics mentioned in the foregoing tables with especial reference to the fact that these qualities become fixed with age.

"Those who negated a teaching age argued that some of our very best teachers are those who are over the 'retiring age' of fifty or sixty, and that there are many young girls who are capable of making splendid teachers of younger children at sixteen or eighteen. They maintain that, if a teacher is genuinely 'good,' she will retain her positive qualities into old age and advocate that a health-limit, instead of an age-

limit, be established. Some are of the opinion that, unless they could enter the profession at an early age, many who would prove good teachers would take up some other line of work, such as stenography or bookkeeping, as a means of earning a livelihood. Others advocate a raising of the requirements for admission to teachership, arguing that, if this is done, only the fittest will get in, and they will tend to be those who will keep their good teaching qualities to the end."

The matter of sex differences in the profession, which is touched upon lightly in the answers to question II, is grasped by the roots in question III, "What are the effects of continuous teaching on the different sexes in (A) health, (B) temper, (C) devotion to methods, (D) open-mindedness and readiness to accept and adopt new ideas?"

Total number of answers..... 137

RETURNS TO QUESTION III

F. 25. I think men have a tendency to reduce everything to a method so they would become more devoted to method than would women. Women have a greater desire to awaken interest and so would use any method that would bring about the desired results.

I believe men are more ready to adopt new ideas than women. Man is more naturally an experimenter and so would more readily adopt new ideas.

M. 44. As to health, teachers are accepted by life-insurance companies as good risks, but the tendency is toward ill-temper; a long period of teaching tends to inflexibility of method and unreadiness to accept and adopt new ideas.

Those who believe that changes in these connections depend only on personality 9

Those who believe that changes depend on school surroundings and the personal life of the teacher 1

Those who mention changes, but emphasize the fact that there are exceptions 9

A. Health.

1. Deteriorates for both men and women with continuous teaching 38
- 2.) Deteriorates for both but more for women 59
- 3.) Deteriorates for both but more for men 1
- 4.) Deteriorates for women not for men 27
- 5.) Deteriorates for men not for women 1
- 6.) Health of neither men nor women is impaired by continuous teaching 6
- 7.) Health is often impaired after continuous teaching, but there is no essential reason why it should be 5

One hundred and thirty-one people think that the health both of men and of women suffers as a result of continuous teaching and only six feel that it does not. In the matter of which is harmed more in this respect, a comparison of figures for each sex indicates that women are far more liable to experience the ill-effects than are men—a point which is further strengthened if we enumerate the frequency of mention of impairment of women's health as compared with that of men, including for both the first item under (A), the resulting proportion being one hundred and twenty-four to forty.

Terman¹ says, "As will be shown later in detail, investigations indicate that the teacher becomes superannuated at a decidedly earlier age than the lawyer, physician, state official, or man of business. . . .

"The teacher may hold a position for several years after forty-five, but if, at this time of life, the old position is lost, a new one is not easily obtained; she is looked upon as *passée*, and is always at a disadvantage in competition with the hopeful and enthusiastic girl of twenty or twenty-two years, newly graduated from the Normal School. . . .

"It is not uncommon for city school departments to refuse by rule even to consider the application of a candidate above the age of forty-five years, however successfully the applicant may have served in other positions. Unless such rules can be shown to rest purely upon prejudice or ignorance, they must be accepted as proof that the work of the teacher is sadly unhygienic."

Further Terman states that the average age for retirement in England is fifty-three for males, and fifty-one for females; in Saxony the average is forty-nine and one-tenth for men, in Hesse and Bavaria, fifty-one and seven-tenths.

"Only one and eight-tenths per cent of German secondary teachers in active service are above sixty-five years of age, while the proportion of judges is about six per cent. University professors reach superannuation later than any other class of teachers, but even these are usually retired, under the Carnegie Foundation, at the age of sixty-five years, the age when lawyers are commanding their highest fees and statesmen are making world-history."

Terman also gives statistics which show a higher tuberculosis mortality for the profession than for the notoriously unhealthy occupations of stone cutter or saloon-keeper. His conclusions are as follows:

"There is higher mortality from tuberculosis for teachers, both male and female, than for persons of the corresponding

¹Terman, Lewis, *The Teacher's Health*. Houghton, Mifflin Co.

sex in other occupations (excess being never less than nineteen per cent and as high as twenty-six per cent).

"There is higher mortality from tuberculosis for female than for male teachers, the difference being forty-three per cent for white teachers, and thirty-nine per cent for all races."

The investigations of Wichmann² prove that it is the beginning teacher who runs the greatest risk of pathological nervous exhaustion. With forty-seven per cent of Wichmann's neurasthenics the nervous troubles appeared in less than five years, and within fifteen years for eighty-seven per cent.

The above seem to justify, in two respects at least, the deductions from the replies to the questionnaire that both health and temper, in so far as that connotes nervousness, suffer with continuous teaching, and that women are at the greater disadvantage in regard to health.

B. Temper.

1.) Temper of both men and women deteriorates with continued teaching	49
2.) Temper of both deteriorates, but that of women more	22
3.) Temper of both deteriorates, but that of men more	7
4.) Temper of women deteriorates, but not of men	18
5.) Temper of men deteriorates, but not of women	2
6.) Temper of neither deteriorates	6
7.) Temper of teachers of very small children and of kindergarten improves while that of teachers of older children deteriorates	2

Here again woman is the greater loser, to judge from the comparative preponderance of opinion in these replies, though a substantial number make no distinction as regards the sexes in this respect.

C. Devotion to methods.

1.) Inelasticity of both men and women increases with continued teaching	65
2.) Inelasticity of both men and women increases but that of women more	15
3.) Inelasticity of both men and women increases but that of men more	10
4.) Inelasticity of women not of men increases	14
5.) Inelasticity of men not of women increases	10
6.) Inelasticity of neither increases	5
7.) Inelasticity varies with individuals not with sex	2

Some few more of the writers of these returns accuse women of being more devoted to method than are men, but the great majority of them make no distinction between men

²Weichmann, Dr. R. Zur Statistik der Nervosität bei Lehrern. Zt. f. Scheges. 1903.

and women in the development of this trait, although they believe that it is augmented by continuous service in the profession.

D. Open-mindedness

1.) Diminishes with both men and women as a result of continuous service	50
2.) Diminishes with both men and women but more in the case of women	11
3.) Diminishes with both men and women but more in the case of men	6
4.) Diminishes in women not in men	19
5.) Diminishes in men not in women	10
6.) Open-mindedness remains in both men and women	8

In this respect also where any distinction is made between the sexes, women are more afflicted than men, but the great body of these answers made no line of division between the tendency to diminishing open-mindedness in men and in women.

The weight of opinion in regard to question III, then, seems to be that continuous teaching has ill-effects on health, and temper, and tends to develop inelasticity and to diminish open-mindedness. That there is any more effect on one sex than on the other in these respects is not suggested by most of these papers, except in the matter of health and of temper, which are thought by more people to deteriorate to a greater degree for women than for men. In every case where there was a differentiation expressed between the sexes, however, women showed to greater disadvantage than men. The deduction possible from these returns is, then, that loss in elasticity, and open-mindedness result for both men and women from continuous teaching, but are not distinguishing marks of either sex on this point, though physical deterioration and loss of temper are more frequently noted and greater in women than in men after continuous service.

If the above are traits of teachers as they advance in years, we may well inquire whether they are like or unlike the characteristics generally ascribed to advancing years, and question IV. which asked, "What physical, mental and moral idiosyncrasies tend to increase with age?" furnishes some light on this subject, although many of those who replied wrongly understood it to apply to the age of teachers only.

Of those who understood the question correctly, the following answers are samples:

F. 20. Apt to become single-minded; see only one side of a question and perfectly incapable of ever becoming convinced that anything different from their ideas is right.

The whole physical make-up has a tendency to take on a drooping appearance. The mouth and facial features droop. Shoulders come forward, chest goes down, knees bend when walking, heels apt to slide on the sidewalk.

They are apt to become very strict and eccentric in their moral ideas.

F. 30. Loss of strength and of will-power is a result of old age.

Old people are apt to develop patience and loveliness of character with increasing years, which is finally surmounted by second childhood.

F. 26. There is apt to come a carelessness in dress, a dislike for new ideas and new study, and a feeling that their own ideas of morals are a little the best. The person, as he grows quite old, is very sure that he knows.

F. 23. The physical organism tends to be broken down and diminishes; not that rugged independence that they had in youth. As physical power diminishes, mental power cannot exert itself undiminished, for a strong mind must have a strong body. With weakened mental, and physical ability we could not expect one to be so strong morally.

The different idiosyncrasies of age were mentioned as follows:

†Physical weakening	15	†More dignified bearing.....	2
†Greater accentuation of physical idiosyncrasies	10	*Selfish	2
Greater accentuation of moral idiosyncrasies	10	*Serious	2
*Setness in mental habits..	10	†More physical care.....	2
†Setness in physical habits..	8	*Exacting	2
*Accentuation of mental habits	8	*More dogmatic	2
†Diminished physical activity	8	Stronger morally	2
*Nervousness	7	†Peculiar bearing	2
*Poor memory	6	*Duller mentality	2
*Less open-minded	6	*Cranky	2
Fixed moral habits	6	*Out of sympathy with young	2
*Narrow	5	*Dwell on past	2
†Stooped shoulders	6	More moral depth	2
*Impatient	4	*Dictatorial	I
Stricter	7	†Colds	I
†Careless in appearance....	3	*Less mental vigor	I
*Mentally slower	3	*Arbitrary	I
*Irritable	3	*Settled character	I
*Over-ride hobbies	3	*Scolding	I
*Better judgment	3	*Not independent	I
†Poor sight	3	Weaker morally	I
†Poor hearing	3	*Lovely character	I
†Hollow chest	3	*Self-important	I
†Lack of physical development	2	*Easily biased	I
		*Mental growth	I
		*Less progressive	I
		Morally tend to ideal	I

* <i>Mentally stronger</i>	I	*Less cheerful	I
†Old fashioned	I	* <i>Lack of application</i>	I
†Clearer voice	I	*Less sympathetic	I
†Distinct enunciation	I	*Less social	I
*Stern	I	*Disgusted	I
†Stern expression	I	†Tired	I
* <i>Habit of going into details</i>	I	†Worn-out	I
†More acute hearing	I	*Spying	I
†More acute sight	I	*Headache	I
*Weaker will	2	*Sarcastic	I
<i>Higher moral ideals</i>	I	* <i>Mentally deeper</i>	I
<i>Moral extremist</i>	I	*Uncharitable	I
<i>Tendency to deceit</i>	I	*Cross	I
* <i>Decreased perceptive power</i>	I	*Stable	I
*Kindness	I	* <i>Weaker mentally</i>	I
*Honesty	I-	*Patient	I
*Religious	I	*Sensitive	I
†Care in appearance	I	*Self-satisfied	I
<i>More definite moral code..</i>	I		

The above constitute the results from only those papers which referred the question to old age in general. There are two hundred and twenty items listed and of these one hundred and eleven mentioned psychic idiosyncrasies, (*) seventy-six physical, (†) and thirty-three moral (*italics*). Only twenty-seven positive qualities were given, establishing a far more striking contrast between negative and positive qualities of old age in general than was apparent in the figures for question I where the replies had to do with very old *teachers* only in contrast to very young teachers. In that case one hundred and ninety-six voices testified to the positive qualities of very old teachers and two hundred and twenty-eight to their negative traits. So far as these figures are concerned the very old members of the teaching profession appear in a most favorable light by comparison with very old people in general. Under question I the matter of physical condition or externals was practically neglected; here, however, they represent more than twenty-five per cent of the points listed. The moral side of the question, which is the least noted of any for question IV, is not touched upon in replies to question I, but under the group of psychic idiosyncrasies for the former, a division is possible into what may be termed purely mental qualities and traits of disposition; (of these two the former are italicized). Of the total one hundred and eleven, fifty-one are purely mental and sixty dispositional, indicating that mental traits of old age, in general, are nearly as notable as are dispositional traits, in contrast to the tremendous emphasis upon disposition, in reference to teachers, that was brought out in the returns to the first question. In so far as these replies are significant, then, physical idiosyncrasies of

very old teachers are proportionally fewer than those of old age, in general, or are, at least, not so marked. Dispositional idiosyncrasies, in contrast to mental attributes, are much more notable in very old teachers than they are in people of advanced years, in general, but the latter's negative qualities are far more overwhelming than are those of pedagogues.

Question V, "Do older teachers tend to lose sympathy and contact with children or young people?" evoked reiteration of the accusations implied in the returns for the previous topics.

M. 22. It is my opinion that as teachers grow older they lose sympathy with children and young people. This may not be true, but the child feels that it *is* true.

F. 23. Old teachers, especially those who never have had children of their own, tend to lose contact and sympathy with young people. This is, however, more pronounced in men than women.

M. 27. It is particularly true of women who stay long in the profession that they become tender-hearted to those under their charge, though not necessarily less strict in discipline.

F. 23. I think that older teachers do tend to lose sympathy and contact with children unless it be in the case of primary or kindergarten teachers, who are continually with young children.

F. 30. Unless one makes a strong effort to retain a young heart, I believe older teachers tend to lose contact and sympathy with children or young people.

Total number of replies	141
Affirmative, (including 30 which called attention to many individual exceptions, and three which made exceptions of kindergarten and primary teachers)	101
"Some do, some don't"	13
"Some do, most don't"	13
Unreservedly negative	14

Thus the unreservedly affirmative number slightly more than fifty per cent of all the answers, while only fourteen replies testified unreservedly to the contrary.

Question VI seeks opinion on as to just what a teacher of advanced years is adapted for in the profession. "Nature provides that parents of from twenty-five to thirty-five more easily adjust to younger children than those of forty to fifty. Can older teachers fit more readily the nature and needs of older children, and vice versa, irrespective of increased mental attainment?"

Total number of replies	123
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Affirmative (including 15 who said that there are exceptions) ..	78
Negative	45

The balance for those who absolutely affirmed either here is slightly in favor of the special aptitude of older teachers for teaching older children.

Miss Gulick writes, "Although the question specified 'irrespective of mental attainment,' those who commented upon this question inclined to deal with the intellectual side instead of with the human. They mention the desirability of having older teachers for the kindergarten because their longer experience in teaching would enable them to guide, direct and control their pupils better, say that young teachers are inclined to be too garrulous and absorbed in their special enthusiasm to really appreciate the needs of their students, and remark on the over-self confidence of older teachers due to their accumulation of knowledge."

The seventh topic was, "Mere age and years bring an unique psychic development apart from increase in learning. Does this tend to qualify or disqualify school work with any age or grade of childhood or is there a "teaching age"?"

Total number of answers	99
Affirmative (There is a "teaching age.")	66
Negatives (There is no "teaching age.")	26
Do not know	7

Of these replies Miss Gulick writes, "The results of this question as listed do not have much significance on account of the great variety of ways in which the question was understood.

"Answers varied as follows:

"1a.) No, there is no 'teaching age' for the age at which persons can do their best teaching is different with different individuals.

"1b.) Yes, there is a 'teaching age,' but the years that it covers differ with individuals.

"2a.) The changes that come with age do not disqualify a person for teaching. They increase his qualification. There is no 'teaching age.'

"2b.) The changes that come with age do not disqualify a person; they make him more qualified. Yes, there is a 'teaching age' below which a person is not a good teacher.

"3a.) The changes that come with age disqualify a person for teaching, therefore there is a 'teaching age.'

"3b.) No, there is no 'teaching age,' though the changes that come late in life may disqualify a person for teaching.

"In the case of many of the answers it was impossible to

determine to which group they belonged even though they may have contained a negative or affirmative answer."

The steady growth and gain in knowledge and power is ascribed about equally to men and to women teachers by the returns to question VIII.

Total number of answers 192

Among these replies one hundred and twenty-two described teachers known to themselves, and of these sixty-three were male and fifty-nine were female. Five said that they did not know any such teacher.

The papers containing responses to question IX list more men than women as having "long since ceased to grow, become stereotyped in opinion and method, prejudiced, and neophobic."

Of the one hundred and sixty-three replies ninety-eight were descriptions of teachers actually known to the writers, and of these fifty-five were men and forty-three women. Thus any deduction on the basis of sex in connection with this or the previous question is of very slight value as the two sets of answers counteract each other in this respect.

A few examples of the returns will show that it is possible to get a fair idea of the concomitants of steady growth and gain in knowledge and power.

REPLIES TO QUESTION VIII

F. 27. I know a lady teacher who must now be nearing sixty years. She is careful of her health, keeps in close touch with her pupils, taking a friendly interest in them even after they have left her, but, as their teacher, their pleasures are hers, and their sorrows are shared with her. She comes with a fresh message, apparently, to every lesson, though she has taught the subject for years, but she reads of the things going on about her now, and makes them freshen the old. She is always young.

F. 40. Teacher of forty years of age, medium height and weight, dark hair and eyes, pleasing features and happy facial expression. Health excellent. Habits regular. Inclined to be sociable. An active church member. Has taught primary grades continuously for over twenty years. Keeps her health good by proper attention to hygiene, relaxation after school hours and during vacation. Keeps her mind active by good reading and by interest in people and things. Keeps up with times and with her work by reading, attending lectures and

by taking an occasional university course bearing on her subject, and by constant attention to details in her own speech (both in pronunciation and correctness in use of words) and in instruction of children by weighing carefully each new method before taking or leaving, in short by *keeping* alive in every sense of the word.

M. 45. Always full of new devices. Neophilic. U. S. map on the floor and constellations on the roof.

One hundred and twenty-one points were given in the twenty available papers in answers to question VIII. Those mentioned most frequently were attractiveness of appearance, personal interest in the pupils and in their lives, and freshness or originality in presentation of subject-matter.

Aside from professional abilities in connection with the class-room work, methods, and treatment of the subject, there are certain general characteristics of the teacher which are very often mentioned in these answers. These may be classified as traits that have to do with the teacher as a social entity and those that deal with purely subjective development. These general or dispositional qualities were given ninety-two times, the social traits noted sixty-eight times as against twenty-four for the subjective traits. Skill in handling the content of instruction is listed nineteen times, outside professional and intellectual interests, twelve, and physical points, thirteen times.

This, then, suggests that the teacher with human interests has a considerably greater likelihood of gaining in knowledge and power than has the one who develops admirable traits which flourish independently of his relations to others. The presence of positive qualities, even of the latter sort, establish, however, a greater probability of good results of continuous teaching than do skill in handling educational material, intellectual or professional interests outside of school, or physical advantages. A noteworthy indication of the returns is that dispositional qualities are far more often mentioned than is efficiency with the work, hinting at a possibility that the subject-matter of the class-room is a far less impressive constituent factor than positive dispositional qualities in yielding a bountiful harvest for the teacher.

Under question IX the reverse side of results of continuous teaching is considered. Only thirty-one papers of the above number on this topic were available, but they furnished one hundred and one items.

The traits that accompany cessation of growth, etc., which are noted most frequently are dependence on text-book, laxity in discipline, unsociability, and tendency to fall into ruts, to be

easily imposed upon, to be mechanical, and failure to keep up with the times.

Grouping the answers on the basis used for the previous question, we find that dispositional qualities are mentioned sixty-three times, lack of efficiency in method, and in handling the subject-matter of the class-room, twelve times, lack of outside professional and intellectual interest, nine times, deficiencies in personal appearance and physical condition, fifteen times, good physical qualities, twice.

Of the sixty-two negative dispositional qualities fifty-one might be termed anti-social traits and the remaining eleven, negative individual characteristics.

Here again the emphasis rests on dispositional qualities—though they are undesirable ones—rather than the relations of the teacher to the subject-matter of the class-room; and of the dispositional qualities, those dealing with the social reactions to and on other human beings seemed more striking than the purely subjective traits. These answers tally with similar findings in the replies to question VIII.

In general, then, these papers imply the co-existence of positive dispositional qualities and growth in knowledge and power, and that the cessation of growth, tendency to become stereotyped, in opinion and method, prejudiced, and neophobic, is accompanied by a variety of negative dispositional traits. "To him that hath shall be given, and from him that hath not shall be taken away even that which he hath." Dispositional qualities of either sort make a much more frequently mentioned impression than does scholarship—whether it be present or lacking. This bears out the deductions based on the returns to question I, which mentioned dispositional traits six hundred and fifty-five times in contrast to two hundred and sixty-four for mental qualities.

The request for suggestions to aid teachers to conserve the period of most rapid growth, and to avoid the evil of monotony, repetition, stagnation, and mechanism met with responses from one hundred and seven people.

The advice most often given was "read educational periodicals, know what goes on in the world, study the children individually, and collectively, attend lectures, suppers, dances, church, keep methods flexible and adaptable, attend teachers' meetings, keep awake and plan so as to make the work interesting, take courses in university or normal school from time to time, visit schools and compare methods, keep yourself open to new ideas, associate with the children and know them in their homes, be out of doors, walk, row, exercise.

There were four hundred and thirty-four items which may

be classified as dispositional qualities, which were mentioned one hundred and seventy-three times, outside professional interests, one hundred and forty-one times, suggestions for the class-room, sixty-one, and advice on physical condition and personal appearance, fifty-nine times.

If figures are significant, dispositional traits again take the lead as the most important factor in teaching. Of the one hundred and seventy-three mentioned, one hundred and twenty-five are in the category of what have previously in this paper been termed social traits, and forty-eight are the so-called individual or subjective characteristics. Under this topic for the first time there appears a recognition of the requirement of scholarship as practically on a par with positive dispositional qualities as an element in the conservation of the period of most rapid growth.

In spite of the admittedly incomplete data in connection with some of the questions, the opinions of the people who replied to the questionnaire have certain rather significant trends which can be summarized thus:

I. The most striking differences between very young and very old teachers are seen in the predominance of setness of method, fixedness of opinion, and resentment of suggestions for improvement on the part of very old teachers. The characteristic strength of the very young teachers lies in dispositional qualities, and the weakness in mental traits, while the very old teachers' positive qualities are mental, and the negative ones are dispositional.

II. There should be age-limits for teachers. Eighteen or twenty years is the lower limit, and sixty years the favorite upper limit, if any.

III. The health and the temper suffer more from continuous teaching in the case of women than of men, but both are about equally liable to lose elasticity and open-mindedness.

IV. Negative psychic idiosyncrasies, especially, tend to a decided increase with age, mental and dispositional traits being about on a par; there is also a marked increase of negative physical qualities. Old teachers are not invested with so preponderantly many negative qualities as are old people in general.

V. Older teachers tend to lose contact and sympathy with children and young people, but fit more readily the nature and needs of older children.

VI. Teachers who grow in power and knowledge with continuous service are endowed with or acquire positive disposi-

tional qualities, while those who cease to grow possess a superabundance of negative dispositional qualities.

VII. Positive dispositional traits—especially of a social kind—are an even greater factor in the conservation of the period of most rapid growth of the teacher than are professional interests and activities outside of the class-room, which are rated, however, as very important.

VIII. In general, dispositional qualities—both good and bad—are much more impressive than any other traits in a teacher.

The emphasis on dispositional qualities in the foregoing data would seem to imply that by virtue of his overwhelmingly negative dispositional qualities the very old teacher should be dispensed with; but Book³ made a finding which is pertinent here. He writes:

“Again the favorite teacher was described as enthusiastic, energetic, young. . . . In fact most pupils think that only young teachers are capable of understanding them. . . . Old teachers are, as a rule, disliked.

“This qualification was emphasized in still another way. Many pupils suggesting improvements for the High School strongly urged the getting rid of all old teachers and replacing them by young teachers who were strictly up-to-date, interested in their work, and thoroughly in sympathy with their pupils.

“It should be stated, however, that the pupils did not mean by old and young a mere age distinction in the ordinary sense. According to them some teachers have never been young, others never get old. Being young, in the students’ own words, means to be enthusiastic, full of life, up-to-date, thoroughly in sympathy with young people and their ways. . . . To be old is to be cranky, pedantic, old-maidish, behind the times, out of touch with the young, impatient, cross, to become indifferent, suspicious, didactic, set in one’s ways, more and more the creature of habit, and the slave to one’s yesterdays, to lose interest in one’s work, and finally to reach a sort of static condition where one ceases to grow, and gets fat. The teacher who was described as quite an old lady, but at heart as young as any girl in her class, who was up-to-date in her teaching and knew just how a girl studied her lessons, her ideas about clothes and all her likes and dislikes, was young in the sense the pupils used the word, although she had taught in that school for over thirty years.”

³Book, William F. *The High School Teacher from the Pupil's Point of View. Ped. Sem.* Vol. XII.

Thus the very old teacher who has the positive qualities mentioned would never be accused of being old. The spirit, not the years seems to be the measure of age.

The fundamental point for pedagogy, then, is that age in disposition is what counts for the teacher. Just so long as he retains certain dispositional qualities, the older teacher is the superior of the young teacher, by virtue of his wider experience and greater knowledge, which latter, however, become as sounding brass if he have not the former.

AMBIDEXTERITY AND DELAYED SPEECH DEVELOPMENT

By MARGARET MORSE NICE, Norman, Oklahoma.

The present paper is a study of a number of cases of delayed speech with special reference to the "handedness" of the children. It has often been observed that interference with congenital left-handedness has caused disturbances in speech, although this does not always happen; the literature on this subject will be reviewed briefly.

Whipple ('11) reports three such cases and in a personal letter speaks of "ten or twelve more." Jones ('15) says, "The fact that I have found a larger number of feeble-minded individuals and stutterers among the 419 transfers of my study easily causes me to fear any transfer from one arm to the other." Smith ('17) found a high percentage of left-handedness in a school for stammerers. Scripture ('17) and her co-workers in the treatment of speech defects report: "Among the left-handed patients who had come to us for training we found a number whose speech defect appeared at about the same time that they were forced to change to the dextral hand. We were able to find some twenty cases which seem to us clearly indicative of the interaction of these two motor coördinations." Bolk and Lueddèkins ('00) as reviewed by Scripture, "found an anomaly of speech in 24 per cent of the left-handed children of normal mental qualities, in those of mediocre, 35 per cent and in those of lower mental qualities, 44 per cent." Ballard ('12) examined 431 left-handed school children and gives convincing figures. He found that: "The proportion of stammerers among normal children is probably not higher than 2 per cent; but among dextro-sinistral (left-handed yet forced to write with the right hand) children of school age the percentage is 17. One in every six stammers, and, if the past school career is taken into account, one in every four." "It is highly significant that among those cases where no serious attempts had been made to change the skillful hand, not a single instance of stammering appeared." Stier ('11) found the percentage of stutterers among the German soldiers in general is at the highest 0.5 per cent, but among the left-handed soldiers from

6.6 to 8.5 per cent, ten times as much. Of 33 left-handed children, 17 stuttered, stammered or lisped.

Prof. C. W. Shannon of Norman, Okla., tells of a very left-handed boy, 12 or 14 years old, whose family and teachers had tried to make him use his right hand. He talked very fast and stammered to some extent when excited.

The following analysis of a case of speech difficulties in connection with left-handedness has been given me by Mrs. Miriam Oatman-Blachly of Norman, Okla. F. comes from a long line of physicians, ministers, missionaries, lawyers and college professors, his father and mother having been first cousins. He is the second of eight brothers. He was brought up in Colorado where school facilities were poor and many of his associates were illiterate, yet those who formed his home circle were all persons of culture. His grandmother and father possessed a considerable talent for making rhymes and jingles, a gift shared by F. The grandmother instructed the children in mathematics and theology, their uncle spent hours in reciting to his nephews the great events in English history, clothed in the most impressive language, while their mother read aloud to the boys a great deal, reading Shakespeare's plays to them before they were of school age. "This family circle must have counteracted to a large extent the tendency to uncouth methods of speech which the rural schools would give. Probably the *opposition* between two speech standards, that of the home and that of the community, ought to be considered in the case under discussion."

F's schooling came to a sudden end when he was 14 years old; for ten years he farmed and raised cattle, yet during this time he read many standard works of English literature and memorized a considerable amount of poetry while riding after cattle. He was finally able to continue his education, completing his preparatory and college work in six years; he received his Ph.D. degree, spent two years in research and since then has been professor of government in a university. "It is evidently not lack of educational facilities that can wholly account for his speech difficulties, though the hiatus during adolescence may have had some effect. However, are not speech habits formed principally in early childhood?"

His father was naturally left-handed, but had learned the use of his right hand. F's fifth brother, now dead, was also left-handed, but was made to use the right hand. He was the slowest of all eight boys in learning to speak, not talking much till he was three or four. He also had great difficulty in writing and spelling.

F. was left-handed, but prevented from using it at a very

early age by his father, and also at school was made to use his right hand for writing. He, his father and brother were almost ambidextrous in many kinds of manual work. He began to talk at 14 months, which was later than his brothers except the other left-handed one; the oldest beginning at 9 months. His mother reports that "he was always a very silent child."

F's difficulties in regard to speech are as follows:

"1. F. finds it almost impossible to remember the pronunciation of words, even though he may have been told repeatedly how to pronounce them, or may have looked them up in the dictionary several times. He explains this by saying that his sight is defective, and also that he reads by noticing ideas, not word forms. This is true, but why can he not fix the word form in memory when he *does* notice it, as in using the dictionary?

2. Of a piece with this difficulty is his trouble in acquiring a foreign language. He can read German fairly well, but his pronunciation is hopeless; and however many times he may have been told the pronunciation of a French phrase, he seems absolutely unable to remember it.

3. In memorizing the vocabulary of a foreign language he has great difficulty. Of course he learned them late—after he was 24.

4. Spelling in any language is his *bête noir*. It ought to be remarked that large and technical words which he has acquired late in life are easier for him to spell than those words acquired in childhood.

5. His writing is almost illegible. Examination of the writing of several members of his family shows that they all write legible hands. He prefers to use the typewriter whenever possible, partly because writing with the pen bores him, partly because he says that typing forms an excuse for misspelled words. His writing varies a great deal and is not reduced to standard forms, but he makes the same letter in several different ways.

6. In reading aloud he often stumbles over very familiar words.

7. In lecturing or talking he often has the greatest difficulty in finding the words that he wishes to use, and hesitates noticeably until he recalls them.

8. His memory for ideas, and for details of many kinds, is remarkably good, while his memory for words is very poor. He knows a great deal of poetry and a quantity of scripture, but he seldom quotes anything with precision."

DELAY OF SPEECH IN CONNECTION WITH HANDEDNESS

Before we can discuss the subject of delayed speech development we should establish, if possible, some standard of normal speech development.

NORMAL SPEECH DEVELOPMENT

The First Word

Bateman ('17) has reviewed the literature on this subject and gives us exactly the data we need. Of eighteen English speaking children, one began to talk at 8 months, two at 9, five at 10, one at 10½, three at 11, three at 12, one at 13 and two at 14. "Of the 35 children, 15 or 42.85 per cent are in the 10-11 group, while 26 or 74.28 per cent have begun articulate speech by the end of the first year." "From the above it would appear that a child of good heredity and environment who has not begun talking at 15 months of age is more or less retarded in this respect, and a like failure at 18 months should instigate an examination for probable cause."

Normal Speech Development at Two Years

Twenty-five vocabularies of two-year-old English speaking children appear to have been published, 18 of girls and 7 of boys. The girls, except for a single example of one very small vocabulary of 36 words (Tracy, '95), range from 263 to 1,227 words, their average being 556. The boys range from 115 to 771 words, their average being 384. The average of all 25 is 508. Since many of these vocabularies are probably unusually large, a safe estimate would seem to be that the normal child of two years has a vocabulary of 200 words or more.

Moreover, the average child of this age is putting words together in sentences. In studies of children's vocabularies the date of the first sentence is given at 14, 15, 16, 17, 17, 19 and 19 months. The only one who is reported as beginning later than two years is Mateer's brother ('08), who was undeniably retarded in talking: "he was three years old before he began to make any connected sentences in speaking." Holt ('10) voices the consensus of experience when he says, "At the end of the second year the average child is able to put words together in short sentences."

Normal Speech Development at Three Years

The 11 published vocabularies of three-year-old children range from 681 to 1,807 words, their average being 1,338. Six hundred words for the vocabulary of the normal three-

year-old would seem a conservative estimate. The speech of the ordinary three-year-old child approximates that of the adult, i. e., verbs are inflected, conjunctions, articles, pronouns and the verb "to be" are all used.

To sum up then, our standard for normal speech development is: the first word by 15 months; at two years, a vocabulary of at least 200 words, and sentences used; at three years, a vocabulary of at least 600 words, and the parts of speech all represented.

DELAYED SPEECH OF LEFT-HANDED CHILDREN IN CONNECTION WITH COMPULSORY RIGHT-HANDEDNESS

Stier ('11) found that 6 of the 33 left-handed children already mentioned—18 per cent—learned to talk late. In 1915 I published some observations on a little girl who had been prevented from using her left hand till she was two, but left free after that; she is still decidedly left-handed. She did not talk at all by the time she was two and at the age of three and a half her language was almost unintelligible. She improved rapidly in speech after this until at four and a half she talked nearly as well as other children of her age. Now, at the age of seven in the third grade she has a good deal of difficulty with spelling, though doing well in her other subjects.

L., a boy fourth in a family of six children, was naturally left-handed, but prevented from using it by his father at an early age. The other five children learned to talk at the conventional age, the oldest beginning at eight months. I spent a day with his mother when he was 28 months old; the only words I heard him say were "Mamma" and "Moo," but probably there were some others he could use. In answer to my questions, his mother wrote me when he was four years old: "L. was very backward about talking but began to talk all at once. He must have been nearly three years old." I saw him at four years and again at five years and four months. At both periods he stuttered when excited, and at the latter age he could not pronounce "r" nor "dh," saying "Mawy" and "dat."

Another case of delay in speech following interference with left-handedness would appear to be furnished by Major's ('06) boy. At one year old the child was clearly left-handed so the parents started in systematically to break up this preference. By the 16th month the right hand began gradually to have the place of ascendancy and by the end of the second year the child was "decidedly right-handed and has been ever since." p. 45.

His speech was markedly imperfect by the time he was three, as the following quotations will show. "The only forms of the personal pronoun which I am sure he used prior to the fourth year were 'I, itself, himself and it,'" p. 308,—a very small list. "He used 'I' a dozen times during the latter part of his third year. The 'I' seemed to take the place of 'Wa' or 'Wadu'—his name for himself—for the moment." He used no conjunctions at three. His father, evidently generalizing from the state of his son, says, "The relative pronouns are not used until long after the close of the period now under review" (the first three years), p. 308. However, of nine published vocabularies of three-year-olds, every child, except possibly one, used relative pronouns. The sample sentences given for the 35th and 36th months show clearly his retardation in speech.

"Was Wa han uh suf." (Wants to wash his hands himself.)

"Tull Wa uh sins." (Tell R. what these things are.)

"Baby tine uh git uh soap." (Baby is trying to get the soap.)

"Iss like uh tsame." (This card is like that one.)

A fourth example is furnished by N., a boy, only child of a University professor of sociology; the information was given me by his mother, a psychologist, Mrs. Anna Kranz Odum of Athens, Ga. N. has always been well and robust; he did not walk with assurance until past 18 months. He has always used his hands well.

Before he was one year old "he had seemed to use the left hand in preference to the right although the right hand was used sometimes for throwing his toys or in fitting things together." At about one year he started to suck the index finger of his left hand and in consequence had to wear a little mit. "Therefore he was forced to use the right hand from then on for exact manipulations. The mits were of thin cloth and loose enough for fine movements of the fingers." Now, at the age of four, "the finger sucking habit persists momentarily when fatigued or hungry. He is ambidextrous and uses his fork with either hand or his pencils, and throws balls with either hand."

He began to talk at eight months, using "the word 'pretty' often and with various applications—to express satisfaction—something desired and as a name for his toys." He had about six words at one year. Simultaneously with the interference with his left-handedness there appeared an arrest in his speech for the next six months; at eighteen months he had less than a dozen words in his vocabulary. His attempts

at learning to walk at the end of this period might possibly have had something to do with this "plateau," but it hardly seems possible that the influence could have lasted so long. "From 19 months on he added new words to his vocabulary rapidly. From two years on he talked much and used a variety of words and short sentences, making sentences of five and six words at two and a half years." Recently from three months before his fourth birthday to two months after, "he has shown more or less marked spells of stuttering, on occasions when he seems excited or intense over something he is trying to relate."

N's left-handedness was interfered with, but instead of his being forced into right-handedness as the two other boys mentioned, or remaining left-handed as the girl did, he is still ambidextrous at the age of four, even to the extent of drawing with both hands which seems most unusual. He began to talk early before the interference began; the six months arrest in speech occurred at the same time as the interference. His stuttering at four years may have some relation to the earlier interference with his left-handedness, or to his present ambidexterity.

AMBIDEXTERITY AND DELAY IN LEARNING TO TALK

Seven children whom I have observed in the last three years have shown retardation in their speech development and at the same time more or less marked ambidexterity.

As we have established a standard for normal speech development, let us see whether we can do this for "handedness," that is, when is right-handedness definitely established in the average child?

NORMAL "HANDEDNESS"

There do not seem to be many observations on the normal development of right-handedness in the baby. Meyer ('13) "states the fact of general left-handedness in infancy," by which term he means the first six or twelve months, but he gives no observations on which he bases his belief. Mrs. Wooley's ('10) baby was left-handed at 7 months and right-handed after 9 months. Baldwin ('95) as a result of very elaborate experiments found that his daughter was ambidextrous when 5, 6 and 7 months old, right-handed at 8 months and left-handed at 9 for a neutral stimulus within easy reaching distance; but when a colored object was substituted, or the neutral stimulus placed farther away, she was decidedly right-handed at this latter age. Dearborn's ('10) daughter

was left-handed at five months, right-handed at 10 months, ambidextrous at 12 months, and right-handed at 19 months. Major's ('06) boy was ambidextrous at 3 months, right-handed at 4 and 5 months, ambidextrous from 6 to 11, and left-handed from 12 to 15 months. His left-handedness was discouraged as before mentioned so that by 16 months he was right-handed.

Dearborn's child is the only one observed after a year old, except Major's boy, who, of course, had not a natural history.

In an attempt to gather more information on this subject, I asked all my acquaintances with babies between one and two and a half years old as to the handedness and speech development of their children. Only four of these parents had had any particular interest in noting the handedness of their children or could give me an idea of when the baby became predominantly right-handed; the others simply gave the present status of the child.

Sex	Handedness	Speech	Present age in months
Boy ¹	Right-handed at 6 months.	Average in talking.	30
Boy	Right-handed, yet uses left somewhat.	Does not yet talk.	13
Boy	Right-handed at 14 months.	Says 3 words.	16
Boy	Right-handed.	About 8 words.	15
Boy ²	Ambidextrous.	Says 2 words.	16
Boy ³	Right-handed "early".	Does not use sentences.	22
Boy	Right-handed.	Talks in long sentences.	22
Girl	Right-handed.	Says 3 words.	12
Girl	Right-handed.	About 8 words.	15
Girl	Right-handed.	About 40 words.	19
Girl	Right-handed.	Talks in long sentences.	26
Girl	Right-handed.	Talks in long sentences.	27

¹ Father a physician. Baby had been paralyzed on right side for two weeks after birth on account of pressure of instruments, so parents noted especially when he became right-handed.

² Both parents medical students, mother also a biologist.

³ Grandmother left-handed.

Only one of the twelve children is reported as ambidextrous, a boy of 16 months. Eight of these children were right-handed by the time they were 19 months old and three others may have been. We might say tentatively that if a child is not definitely right-handed by 20 months that the fact is noted by its relatives. But this is a subject on which we need much more data.

THE HANDEDNESS AND SPEECH DEVELOPMENT OF THE
CHILDREN OBSERVED*Cases I and II*

D. is our second daughter and R. our third. Their father was a precocious talker; according to his mother he "could say everything at a year old, make sentences and tell a story. He talked earlier than any other child I ever heard of; he was a wonder to the neighborhood." Their mother appears to have been an average child in learning to talk, saying her first word, "Addie," at 13 months. All of her brothers and sisters began to speak at about this same age, except the oldest brother who "said very little even after he was two."

Their elder sister, E., exhibited a normal history of speech development, (Nice, '15 and '17) beginning to talk at 14 months, having a vocabulary of 133 words at 18 months and using sentences at 19 months. Her vocabulary at 3 years included 1,139 words; at 4 years, 1,765; at 5 years, 2,502, and at 6 years, 3,075 words. She crept at 8 months and walked at 13. She developed a consistent right-handedness early. She has been less skillful in the use of her hands than her sisters; in cutting, sewing, dressing herself and drawing, D. has done better than E. at the same ages.

Case I

D. has always had a splendid health and a fine physique, all her life being taller and heavier than the measurements of average children in Holt. She crept at 10 months and walked at 15; the reason for her being later than E. was probably because she was heavier.

D. was ambidextrous to some extent till after she was two years of age; at 25 months I noted, "When she draws on the blackboard or on a paper she is as apt to use her left hand as her right." She outgrew this ambidextrous tendency rapidly; in a month or two coming to use her right hand exclusively when using the chalk or crayon.

D. did not begin to talk till she was 20 months old. She learned 3 words that month, added 13 during her 21st month, 16 the next and 13 the next so that she was using 44 words by her 2nd birthday. This is one-thirteenth as large as the average of the published vocabularies for this age. I recorded her all day's conversation when she was 2 years and 2 days old. She said 7 different words and a total of 18. When we compare this with Gale's boy ('00) who used 5,194 words in one day at this age, and his friend's son who used 10,507 words, D. appears considerably retarded!

She learned rapidly after this, adding 24 words the next month. I recorded her all day's conversation again at 25 months and 12 days; at that time she said 28 different words and 152 in all. By 26 months she had attained 145 words and had begun to connect them in sentences. At 30 months she had a vocabulary of 538 words. Five vocabularies of children of this age have been published; two boys had 480 and 1,432 words while three girls had 769, 1,111 and 1,509 words, the average being 1,060, twice as much as D.

At three, D's vocabulary had grown to 856 words. This is larger than two other girls who started to talk at 10 and 10½ months, yet by three years had attained 681 and 736 words respectively. The average of 11 vocabularies (this includes D's) is 1,338. At 35 months we recorded D's whole day conversation; she used 2,018 sentences or 7,600 words, the average number of words in a sentence being 3.77. Her sentences were short; E. and Brandenburg's ('15) daughter at the same age used sentences of 6 and 7 words on an average. When we examine D's sentences we find omissions in many of them. "I write bine (fine) letter. Want to write more letter. No, dit (this) one my cow." Yet, "is," "a," and "I" were not uniformly omitted. From the character of her speech and the shortness of her sentences, I would consider her still somewhat retarded at three, although her vocabulary contained more than 600 words, and she used all the parts of speech.

At four, her vocabulary contained 1,506 words, the average of 7 published vocabularies being 1,843. By this time her speech development was certainly normal.

At five, by the Binet test, she had an understood vocabulary of 3,600 words, the 8 year level.

Case II

R, our youngest daughter.

She has not been so uniformly well as our two older children. From the age of 8 months to 11 she had some digestive troubles, part of the time being under-nourished. But since then she has been perfectly well most of the time. She crept at one year and walked at 16 months.

In giving an account of the use of her hands, I will give only those records that appear to be of most significance. The two main points on which I watched her were her use of her hands in eating and with the pencil.

I will first give an account of her handedness in eating.

At 12 months, I noted: "She seems to be left-handed. She often holds her toast in her left hand and although I change it to the right, she usually changes back to her left."

For the next three months she appeared to be ambidextrous. No effort was made to encourage right-handedness till after she was 16 months old.

At 16 months I tested her three days in succession with cornflakes placed in the middle of her tray. She used her right hand 30 times and her left 22; so that her right was used 57.5 per cent of the time and her left 42.5. After this we took pains to put her cornflakes on the right side of the tray.

At 19 months at one meal when eating cornflakes she used her right hand 7 times and her left 6.

At 21 months when eating cornflakes with her bare hand she used her right hand 18 times and her left 24. She was given a spoon and used it entirely in her right hand. From now on she used her left hand often at her meals, but always changed to her right when it was suggested to her.

At 27 months. I kept track of the use of her hands at meals for the first 12 days after she was 27 months old. During this test period she was never reminded about changing to her right hand but she occasionally did it of her own accord, patting her right hand in approbation.

21 meals were eaten wholly with the right hand.

1 meal was eaten wholly with the left hand.

8 meals were eaten half with the right and half with the left.

4 meals were eaten mostly with the right.

2 meals were eaten mostly with the left.

The proportions may be represented as follows:

Use of Right Hand	Use of Left Hand
21	1
8	8
8	4
2	4
39	17

Therefore she used her right hand 69.6 per cent of the time and her left 30.4 per cent.

I made another series of observations beginning 3 days before she was 28 months old and lasting 7 days. Sixteen days had elapsed between the two series during which time we encouraged the use of her right hand.

18 meals were eaten wholly with the right hand.

3 meals were eaten half with the right and half with the left.

1 meal was eaten mostly with the right.

The proportions are as follows:

Use of Right Hand	Use of Left Hand
18	0
3	3
2	1
23	4

She used her right hand 85 per cent of the time and her left 15.

The use of her hands in these three tests may be summarized as follows:

Age	Use of Right Hand	Use of Left Hand
16 months	57.5 per cent	42.5 per cent
27 months	69.6 per cent	30.4 per cent
28 months	85 per cent	15 per cent

During her 27th month the preponderance of her right hand became so marked that by 28 months her ambidextrous tendency had almost disappeared.

Now as to the use of the pencil.

At 16 months she took a pencil with her right hand, changed to her left and made marks with it.

At 17 months she crayoned on paper and wrote once with her right hand and twice with her left.

At 25 months I gave her chalk in her right hand, she transferred it to her left and marked on the board with the left. The next piece she took in her right hand and marked with the right. With the third piece she began to mark with her left hand but changed to her right. The next was used with the left hand, but the last three were with the right. She marked five times with her right hand and three with her left.

When 26 months and 2 days old, she crayoned a little with her left hand but mostly with her right. Three days later she started to scribble with her left hand but quickly changed to her right.

When 27 months old she used her right hand exclusively for drawing.

In summing up this phase of her development, we find that at 16 and 17 months she used the pencil in either hand indiscriminately; at 24 months she was in the experimental stage but showing a slight preference for the right hand; at 26 months this preference had increased, but she was still experimenting to some extent. By 27 months she had definitely discovered that the right hand was the hand to draw with. In the use of the pencil she was left absolutely free to work out her own experiments and was not helped by direct training as in the use of her spoon and fork.

R's speech development has been unusually slow. She began to talk at 16 months, saying 2 words that month, but these 2 words sufficed her for 5 months. Her vocabularies of total words for each month follow: 16 months, 2 words; 23 months, 4 words; 24 months, 5 words; 25 months, 8 words; 26 months, 12 words; 27 months, 15, and 28 months, 25 words. Her vocabulary of 5 words at 2 years is one-hundredth the size of the average of the published vocabularies. I recorded her whole day's conversation at 2 years and one week; she said 3 different words and 53 in all. Her 25 words at 28 months should be compared with the published vocabularies of this age (Bateman, '16); there are six of these for English speaking children; they range from 308 to 677 words, the average being 469, 19 times as large as R's.

By 27 months R. had become entirely right-handed in her use of the pencil and by 28 months she was almost entirely right-handed in her use of the spoon. During her 27th month she made much more progress in talking than in any of the preceding months, her vocabulary increasing 66 per cent.

Although R. is so loath to speak, she constantly surprises us by the amount she understands. She makes us understand her too, by shouts, grunts, exclamations, squeals, gestures and by taking hold of us and leading us to the desired place. Pretending not to understand her, nor really failing to guess her meaning seem to be no encouragement to her to express herself more fully by the conventional method.

Case III

C. is a cousin of D. and R., her father being brother of their mother. Her father "was very slow in learning to talk, and said very little even even after he was two." She has two older brothers who were perfectly normal in their speech and handedness, the oldest being rather precocious in his use of language. She had a severe illness—pneumonia and ear trouble—from the age of 7 to 9 months, but since then has been exceptionally well and sturdy, a very large child for her age.

At 28 months, at which time I saw much of her, she was markedly ambidextrous; she would eat with her right hand for a while and then with her left. She seemed to use her two hands perfectly interchangeably.

Her vocabularies at 2 years, 28 months and 30 months were collected by her mother, Mrs. Ruth Tucker Morse of Princeton, N. J.

2 years:

Nouns: 8. Baa, ball, brother, bow-wow, Daddie, Mamma, moo, quack.

Adverbs: 3. Downstairs, more, no.

Interjections: 2. By-by, hullo.

Total—13 words. Adding one proper noun makes 14.

28 months: All of 2 year vocabulary repeated except "baa" and "quack."

Nouns: 18, 6 old and 12 new. Animal cracker, auto, baby, bath, bread, brush, butter, choo-choo, girl, milk, potato, water.

Verbs: 2. See, come on.

Pronoun: 1. Me.

Adjectives: 3. Dirty, good, poor.

Adverbs: 8, 3 old and 5 new. All gone, outdoors, please, there, yes.

Interjections: 3, 2 old and 1 new. Oh.

Total—35 words. Adding 4 proper nouns makes 39.

30 months: All of preceding vocabularies repeated.

Nouns: 69, 20 old and 49 new. Apple, bag, beads, bed, bib, bird, block, boat, boy, box, clock, cloth, color-book, cocoa, cup, door, dress, egg, fish, geese, hands, hat, hay, hole, horse, ink, juice, key, man, meat, moon, paper, peach, pear, picture, piece, pin, pudding, rooster, rubber boots, rubbers, sheet, shoe, slippers, spoon, stone, teeth, toast, zwieback.

Verbs: 19, 2 old and 17 new. Beat, broke, cry, don't, dress, excuse, get, go, look, open, undress, pull, shut, tore, walk, want, wash.

Pronouns: 4, 1 old and 3 new. I, mine, my.

Adjectives: 11, 3 old and 8 new. All, back, bad, bare, blue, the, new, two.

Adverbs: 10, 8 old and 2 new. Here, out.

Interjections: 4, 3 old and 1 new. Good-night.

No conjunctions and no preposition.

Total—117 words. Adding 5 proper nouns makes 122.

Her vocabulary of 13 words at 2 years is one thirty-fifth as large as the average of the published vocabularies of that age. Her vocabulary of 35 words at 28 months is one-twelfth as large as the average of the published vocabularies for that age. At this time she began to put words together: "Poor Barbar." "See—there dirty."

Her vocabulary at 30 months—117 words, although it shows rapid improvement over the preceding, is only one-eighth as large as the average of the 5 published vocabularies of this age, 1,060. Sample sentences at this time were: "Cho-choo

go over the wawa (water)." "Com'on, Mamma, or (I) want bark (Zwieback)."

When she was 33 months old, her mother wrote: "C. still uses her left hand sometimes, but ordinarily uses her right. Her vocabulary has increased tremendously. She is such a chatterbox now that she has really found a use for her tongue."

I saw the child for a few days when she was 3 years and 4 months old. She was decidedly right-handed and a great talker. She mixed her pronouns, preferring to call her girl cousins "he." She did not seem to have quite recovered lost time, most children of her age talking more distinctly and more correctly than she.

Case IV

G. is also a cousin of D. and R. but on the father's side, her father is brother to their father. She is the first child in the family. Her father stutters to some extent.

I saw her for one day when she was 2 years old. At that time she appeared to use both hands interchangeably. This was confirmed by her aunt, a College student, who took much care of her, and whom I asked to observe her.

Although I listened carefully, I did not hear her say a single word. Her aunt reported her two year vocabulary as consisting of 7 words: Baby, Mamma, Papa, see, here, now, by-by. This is one-seventieth as large as the average of the published vocabularies.

I saw her again for a day when she was three and noticed that she still used her left hand equally with her right. Her father, when asked whether G. was left-handed, said, "She uses one as handily as the other," and then bade her eat with her other hand and she obediently changed from her right to her left. There has been no attempt to encourage right-handedness in her case.

She is a quiet, rather shy child, and talked less than usual with strangers about. All I heard her say were single words: "Eggy," "broke," "bile (auto)," "baby," "don't," "Poppy." Her relatives said she did put some words together, but all they could think of were "Grea' big bile," "Grandpa's baby" and "big blue hen."

G. apparently talks less than an average 2 year old child. She is the oldest child I have personally observed who uses one hand as much as the other.

Her sister, 18 months younger than G. uses her right hand more than her left. She talked nearly as much as G. when I saw the two children. Two months later their aunt wrote that she "talks better than G."

Case V

M. came under my observation when 3 years old as a playmate of my own children. She is the daughter of a physician, having one brother 7 years older. She was delicate as a baby, as was her brother.

Her mother said she had been slow in learning to use her right hand; she would take her spoon in her left hand and her mother would have to change it. Yet if she spoke about it, M. would be apt to persist in her wayward ways.

She talked late; her mother was in despair lest she never would talk. She hardly talked at all at 2, and did not form sentences till she was $2\frac{1}{2}$, whereas the brother talked in sentences at 18 months. At 3 years and 3 months it was impossible for a stranger to understand her when she said more than a few words. She left out "is" and many of her consonants.

Case VI

U. is a girl, only child of a farmer. I became acquainted with her and her mother on the interurban when she was 20 months old. She was a large, healthy looking youngster who had walked "at 14 months all at once." Noticing a scar on her left thumb I asked the cause of it, and how she used her hands. She had fed the cat and been bitten. She used her left hand "right smart," always for throwing, so that her father was bothered. However her mother said she used her right hand more. There was no left-handedness in the family.

She talked very little according to her mother, saying "Daddy," "myow," "ch" for horse, "all right," and "Where is it?" All others of the family connections have been in the habit of talking long sentences by the time they are two years old.

Case VII

W. is a boy, only child of a college professor of biology. I saw him often from the age of 10 months to 18, but practically all the data has been supplied by his mother, a writer, Mrs. Marjorie Hill Allee, of Lake Forest, Ill. W. has always been a sturdy child and large for his age. He walked at 14 months.

He was ambidextrous till he reached the age of two and a half. "He was not any more left-handed than right-handed, my impression is that he always favored the right hand a little," wrote his mother. "I used to take some pains to put his spoon on the right hand side of his tray, but I don't need to do that any more (at 3 years). At 2 he was still uncertain which hand to use. At 3 he much prefers his right to his left, but is not particularly clever with either, though quite strong."

As to his speech history, "at 18 months he had a rather indefinite 'see' and at 20 months he added a very plain 'cow.' He seemed to understand our talk to him well enough for all practical purposes." At 2 he said only a few words.

His mother started to collect his vocabulary at 3, but sent it on still incomplete. She did not include proper nouns, nor animal noises, "nor colors, nor numbers, of which he is still rather uncertain, though in a general way he understands their meaning. Outside of these I should say that there were perhaps 50 more words I have not caught and that the majority of them were nouns." As it stands it contains only 271 words; adding 50 makes it 320. Of course this is approximate, yet it is significant on account of its very small size. The smallest 3 year old vocabulary published contains 681 words, the largest 1,807 and the average of the eleven published is 1,338—four times as large as W's.

His pronunciation was imperfect, final letters often being left off. "His supply of verbs is very short and irregular; of these he can use the third singular present and the 'ing' form in every case. Usually he leaves out the verb if possible." Of personal pronouns he used "me, mine, my, you and thee." "My" was often used as the nominative. He did not use "I, we, him, her" or "they," substituting the name. He used "me" occasionally but confused it with "my" or "mine." He did not use "a" or "the."

"He isn't at all certain about colors and while he knows a few colors he cannot be relied upon to tell even black from white. Red seems to be a pretty certain quantity."

Sample sentences at this time were:

"One time was old man. Climbed up tree."

"Time go bed for mine. Going kiss—you me?"

"My going sit here."

The handedness and speech development of these seven children is summarized in the accompanying table.

TABLE OF SPEECH DEVELOPMENT OF SEVEN CHILDREN

Child	Handedness	Time of first word	Speech development at 2 years	At 30 months	At 3 years
Standard	Right-handed at 20 months	15 months	200 words; sentences used	.....	600 words; all parts of speech
D. Girl	Somewhat ambidextrous at 2	20 months	44	538	856
R. Girl	Ambidextrous till 26 months	16 months	5	.....	.....
C. Girl	Decidedly ambidextrous till 30 months	.....	13	117	Nearly normal
G. Girl	Decidedly ambidextrous at 2 and 3	.....	7	.....	Very few words
M. Girl	Ambidextrous till after 2	.....	Very few words	Began sentences	.....
U. Girl	Ambidextrous at 20 months	Few words at 20 mos.	.....	.....	.....
W. Boy	Decidedly ambidextrous till 2½	18	Very few words	.....	320?

Let us see how the addition of these small vocabularies affects the averages of the vocabularies already published.

The 2-year-old vocabularies of R., G., C., and D. were 5, 7, 13 and 44 words respectively, the average being 17.25. The average of the 18 vocabularies of 2-year-old girls already published is 556—32 times as large; they reduce the average of 2-year-old girls to 458 words. Counting in the boys' vocabularies, the average of all 25 published vocabularies is 508—29 times as large as the average of these four children. The average of all 29 vocabularies is 440 words.

R. with 12 words and D. with 145 at 26 months reduce the average for this age from the 896 words of the 3 vocabularies already published to 569.

R. with 25 words and C. with 35 at 28 months bring the average vocabulary for this age from 469 words to 359.

The average of the published vocabularies for 30-month-old children is 1,060; D. with 538 words and C. with 117 reduce it to 851.

DISCUSSION

Can we find any explanation for these children's retardation in speech?

Bateman ('17) says: "It is difficult to believe that a child who has made no attempts at articulate speech by the eighteenth month, and still more so by the twenty-fourth, can be entirely normal in all other respects. General feebleness of health, poor powers of hearing, defects in or lack of development of the vocal organs, or adenoids may lead to disability in speech." As to health, R. suffered from under-nourishment from the age of 8 to 11 months, C. had a serious illness from the age of 7 to 9 months, and M. was a delicate baby. However all these children were well and sturdy most of their lives. D., G. and W. had exceptionally good health and U. surely looked as if she did too. M's brother was as delicate as she when a baby and yet he talked early. The matter of ill-health might be remotely involved in only 3 of the 7 cases, and it does not seem probable that it had anything to do with the retardation in speech.

None of these children have suffered from "poor powers of hearing, or defects in or lack of development of the vocal organs." As to adenoids, D. and R. had none, although their sister who talked early, has small ones; C. has had none, while her brothers who talked early, had to be operated upon for this cause. So far as I know, none of the other children of this study have had adenoids. The boy, L., had none, while a brother and sister were seriously troubled with them.

Dr. Wm. Boyd in a personal letter speaks of a child who was slow in talking and considers the matter one of phonetics for "the majority of her vowels are the back vowels oo, oh, aw, ah and the mixed vowel uh." In R's 26-month vocabulary of 12 words all the vowels were back vowels except one mixed; yet in her own spontaneous sounds and expressions she used the front vowels about one-third as often as the back vowels. Of the 14 new words learned in the next 2 months, 8 employed back vowels, 2 mixed and 4 front. D's first 14 words showed 7 back vowels, 1 mixed and 6 front. R. apparently is in accordance with Dr. Boyd's observations, while D. was not. Of the other children I cannot say, for it takes most careful noting of the exact pronunciation to report on a matter like this. However, even when this holds true, does it take us back to the underlying cause; what is the reason that the front vowels should be more difficult for one child

than for another? May it not be just another *evidence* of retardation in speech, on the same par with a small vocabulary, and not an *explanation* of the retardation?

Can general mental retardation account for the backwardness in speech of these children? With all of them their ability to understand has far outstripped their powers of expression. The parents testify that they are as intelligent as other children of their age despite their lack of loquacity. In some practical matters R. knows more than either of her sisters did at her age. D's intelligence quotient according to the Binet test was 133 at three and a half years, while her sister E's was 120.

There is one respect in which four of these children were slower in developing than their brothers and sisters, and that was in appreciating rhymes and stories. C. and M. were later than their brothers in this phase. D. has been slower than E., and R. is the slowest of all our three children. With D. and E. there has come a very definite period when they liked Mother Goose recited to them with no pictures as added attraction; if they were inclined to be restless, the verses would command their rapt attention, whereas before there was no calming effect whatever. With E. this period came at 18 months, with D. at 23 months and it has not yet arrived with R. who is 28 months old. However, at 26 months, she just began to pay attention to verses when they were read out of picture books and at present demands a good deal of reading of rhymes and the Potter stories. E. liked the "Three Bears" and "Red Riding Hood" at 22 months but D. did not care much for them till she was 35 months old. W. enjoyed these stories at 3 years.

We have no criterions for this phase of mental development except Jegi's child ('01) who outgrew Mother Goose before she was two, and she can scarcely be considered normal, so we cannot tell how these children would compare with a large number of others. It is perhaps natural that these children who were slow in learning to talk should also be slow in understanding or caring about more difficult words, yet at the same time they might be as intelligent as others in other directions. At any rate we are safe in concluding that general mental retardation does not apply in any of these cases.

Ill health, defects of hearing, malformations of the vocal organs, adenoids, phonetics and backwardness of intelligence do not seem to explain the retardation in speech of these children. The only constant phenomenon that appears to be associated in all seven cases is the more or less marked ambidextrous tendency. It is well known that there is an intimate association between the hand center and speech center

in the brain and that normally the speech center is located in the dominant side of the brain in close connection with the hand center. An attempt to change the dominant hand often disturbs the speech mechanism, causing stuttering, stammering, lisping or sometimes a delay in the appearance of speech. These seven children showed a prolonged state of uncertainty as to which hand should lead and in the meantime they did not talk. An explanation of the coincidence of retardation in speech and in the ascendancy of the right hand might be that as long as the dominant hand center was not definitely settled the speech center could not be located. Yet it is impossible to know the exact relationship of these two factors; they might both be the results of some other cause.

This coincidence of ambidexterity and delay in learning to talk does not occur in all cases. There are of course many other reasons for retardation of speech in individual children. For instance, R. at present has practically outgrown her ambidextrous tendency, yet she hardly talks at all. Others may talk early and yet be ambidextrous. Two such cases have been reported to me. One is a girl who at 27 months talked a good deal, yet she used her left hand almost as much as her right despite her parents' corrections. A month later, however, she was practically right-handed. The other is a boy now 12 years old, who was ambidextrous till after he was two; the parents made no effort to encourage right-handedness, which he developed later. He was an early and distinct talker.

We have an almost untouched field in this subject of the relationship between speech development and the use of the hands. We need a large number of studies on children and particularly on those who are more or less slow in talking and who have hitherto been almost wholly neglected by observers, before we can hope to find the underlying causes of the differences in speech development in different children.

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SCHOOL CHILDREN AND FOOD PRODUCTION

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Of all the problems that have engaged the minds of the American people since the entrance of this country into the great world-conflict, there is no subject that is of greater importance for the successful prosecution of the war than that of increasing the food supply. Beside men and ammunition we have come to realize that food is the third member of the trio which is absolutely indispensable in shaping and determining the issues of war. Without an adequate supply of food no nation can carry the war to a successful termination, no matter how efficient its military machinery may be. The armies in the field as well as the civilian population at home must be fed. Men of highest authority, with full knowledge of the war conditions, have repeatedly told us that this war must be fought not only in the front-line trenches but also on the farms. "Food will win the war." Any consideration of military efficiency without giving special heed to the problem of food is inadequate to the issue.

To increase the food production the schools in this country have undoubtedly a new task to perform. The course of nature study taught in a pedantic, cut-and-dried fashion can be transformed into practical gardening work with great advantage both from the standpoint of increasing the agricultural output of the nation and from the standpoint of increasing the educational value of the public school. The boys in the upper grammar grades, in the intermediate schools, and in the high schools who may not be called upon at once to enter actively into war service in the field can be made fully as useful on the farm. America to-day is mobilizing all her resources to meet war needs. Public schools must appreciate this situation and rise to the task of meeting the real needs of the nation. They too are to mobilize. They are called upon to cultivate the patriotic spirit of service in the American youth. They can make themselves a very useful institution to the nation in this time of national crisis by addressing themselves to the task of directing the boy and girl power of the nation to productive service. There is no war measure in which the schools can take part more effectively than in making boys and girls render service in food production.

Indeed, there is no national service within the power of the children which is more vitalizing and ennobling, fuller of purposeful appreciation of collective responsibility, than planting potatoes and vegetables in the vacant lots and in the back yards, picking fruits in the orchards, and driving teams on the farm. War has offered an unprecedented opportunity to the schools to bring their activities closer to life. Have schools in America proved themselves equal to the task?

Realizing the important part which school children can play in food production, the writer has included in a questionnaire sent out to school superintendents in different parts of this country the following two questions:

1. How have your schools aided in food production (*i.e.*, gardening, school or home)?

2. Have you made any provision for exempting children in the upper grades and high school from school attendance for farm work, and if so, how many, under what conditions, and for how long? Did the result of such action seem to justify it, and what is the sentiment?

The answers to these questions so far received are most suggestive as to what the schools have been doing throughout the country. In some places, school grounds have been plowed up and put under cultivation; garden clubs have been organized; vacant lots in the cities have been planted; boys of the upper grades and high schools have given their assistance upon farms where help could not be secured;—these and many other things are being done in practically every state of the Union. From Michigan in the north to Florida in the south, from Maine in the east to California in the west, letters have been received from local school authorities stating what they have done and what they expect to do along these two lines. For the convenience of presenting the subject, I shall treat the problem of children's part in food production in two sections, namely, (1) school and home gardens, and (2) school children and farm work.

1. SCHOOL AND HOME GARDENS

No satisfactory statistical report can be made on this subject on account of insufficient data. But enough has been received to show that there has been a nation-wide movement in school and home gardening since America entered the war. I shall introduce the subject by giving a few typical examples of what has been done in some states.

California.—According to the statistical study made by Arthur H. Chamberlain, Chairman of the Committee on Thrift

Education of the National Council of Education, there were 2,625 acres under cultivation last year in the 37 school districts investigated. Beside this there were thousands of school gardens and home gardens aggregating 800 or 1,000 acres. Schools in the hilly regions, in the large cities, and in the agricultural, fruit and dairying districts have in general all made their contributions toward food production according to the facilities at their disposal.

The gardening work done by the public schools in Los Angeles may be considered significant both for the amount of land cultivated and the systematic effort put forth by the school authorities. Just a few days after the beginning of the war the superintendent sent to the principals a circular which outlined certain preliminary steps and notified them of the appointment of additional continuation teachers to supervise home garden projects. Within six weeks the school department made a complete record of many vacant lots and their ownership, adequate provisions for giving expert advice on soils and planting, for distributing plants from school gardens to the various home gardens, for lending tools to those unable to purchase them, and for giving lectures to Parent-Teacher Associations and other public bodies. As a result of this effort, 14,012 pupils in the elementary schools alone became regularly engaged in gardening outside of school hours. The amount of additional acreage put under intensive cultivation by children in the elementary schools was 1062.16 acres.

Not only the elementary schools, but the high schools have also been at work. In Van Nuys High School, situated in San Fernando Valley, the boys interested in athletics agreed by unanimous vote to plow up their baseball fields and to plant beans. Money for seed beans was voted by the student body. Work in preparing the soil and in planting was done by the boys. The crops harvested from one baseball field amounted to 2,417 pounds of cleaned beans. Plans have also been made to replant the baseball field in this spring.

Examples of this kind are trivial in themselves, but significant in their mass. It has been learned that county and city school authorities throughout the state are endeavoring to co-operate in every possible way with the agricultural colleges, the State Council of Defense, and other state agencies in food production this year. It is their ambitious program that every one of the pupils in the elementary and high schools shall be made to do his part in increasing the agricultural output of the State.

Connecticut.—In the city of Stamford, every school has been conducting a garden or gardens, beside many home gar-

dens that were started because of school initiative. In the same city the high school had a potato farm cultivated by the students last summer, and credit was given for the work done.

In the city of Hartford, a Vacant Lot and Home Garden Committee was formed last year. School children had a large part in the work of this Committee which cultivated 1,400 vacant lot gardens and hundreds of back-yard gardens.

In some cities of this state special supervisors have been appointed to supervise the gardening projects. For instance, the school authorities in the city of Waterbury appointed a special instructor to supervise the work of 2,500 pupils who had gardens last year. In the city of Meriden, 850 children had gardens which were cultivated under supervision.

Taking the state as a whole, the amount of gardening work done by the school children is very noteworthy, but I believe there is still a good deal more to be done.

Illinois.—The work done in the city of Joliet is typical. The Rotary Club plowed all the available vacant lots in the city, and school boys and girls took charge of their cultivation. This work was done under the direction of the school authorities. The food products were sold and the receipts divided, half going to the owner of the land and half to the students who cultivated it. In another suburban community, 980 children out of a total of 3,000 cultivated home gardens. From the answers to my questionnaire on this subject, there is enough evidence to show that much gardening work was done last year throughout the state, and more extensive and systematic work will be done this year.

Indiana.—Very systematic work has been done in school and home gardens in this state. Indeed, the whole state has been organized for this purpose. From the state office we learn that more than 80 teachers have been employed to supervise boys and girls in their projects for crop production and food conservation. The county agents in each of the 42 counties have made definite plans for organizing and supervising agricultural and garden clubs. It is estimated that 40,000 boys and girls will be engaged in food production and conservation this summer. This may be suggestive of what was done and what is being done in that state.

Iowa.—Two typical cases may be mentioned. In answering my questionnaire, the superintendent of Sioux City says: "We maintain regular garden work in the city during the summer. We have a garden supervisor who gives his whole time to this work and has the help of several assistants. We maintained successfully somewhere near one thousand gardens

during last summer, and produced about 40,000 dollars worth of food productions."

From a rural school district, the superintendent writes: "School and home gardens were planned and carried out last summer under the general supervision of one of the grade school principals. In the fall an exhibit of the products from these gardens was held, and prizes were awarded for the best exhibit. This work will be carried out to a still greater extent next summer, as the interest in this work throughout the community is very general."

Kentucky.—The statement from the superintendent of Louisville may be suggestive as to what is done in this state. He says: "Shortly after the declaration of war the Board of Education extended the school and home garden work. A director was appointed on an all-year basis and a number of assistants were provided. For this work an annual appropriation of \$3,700 has been made. During the past summer this work was very successful and plans are on foot for securing more extensive results in 1918."

Massachusetts.—On account of the unproductive soil in most parts of this state, gardening in general did not have very successful results last year. "We attempted a considerable amount of gardening work last year," said one city superintendent, "but found that the soil available was unproductive and that the results, with few exceptions, were not satisfactory." However, the work in school and home gardens has been carried on with zeal and enthusiasm by different school systems. In the city of Newton, 91 school gardens on twenty different plots of land have been established and maintained in addition to 1,400 home gardens. This work was under the direction of the supervisor of Nature Study and School Garden Work. In the city of Haverhill, it was estimated that the work of the schools contributed to food production approximately \$10,000. In the city of Lynn, the school authorities conducted about two thousand home gardens and about a dozen school gardens beside.

Michigan.—In Grand Rapids, about 1,300 children were organized in the garden clubs and had home gardens. These were under the direction of the County Farm Bureau with four district supervisors in the city. From the superintendent of that city we learn that plans for the coming summer are now being made to have at least two thousand children organized in the garden clubs, each with a home garden.

In Detroit the Public Recreation Commission has organized garden clubs to cultivate vacant lots. The work has been

under the direction of playground workers. There were 1,200 gardens and 715 potato patch assignments. Potato patches were plowed and the seed furnished at cost. There were exhibits and competitions among the various classes and gardeners.

In the city of Jackson, school gardens have been everywhere encouraged. Beside the regular school gardens, there were 2,546 children, or 48% of the entire school enrollment, that participated in gardening enterprises.

New Jersey.—The schools of the entire state have been mobilized for food production. The Assistant Commissioner of Education heads the work of the Junior Industrial Army of New Jersey, organized last year. This Junior Industrial Army consists of three divisions, agriculture, home gardens, and girls' service. People in different parts of the state are called upon to organize locally, and each county superintendent has been made responsible for the work of food preparedness in his own county.

The typical garden work in this state may be said to have been done by the garden clubs in the schools of Englewood. They were organized during the summer of 1916 and were directed by the local board of education and the superintendent of schools through a supervisor of gardens employed for this special purpose. They were not a war-time creation, but their organization has been so efficient and practical that it may not be out of place to describe it very briefly.

Organization.—Children of all the schools who elect the gardening work must obtain registration blanks from the supervisor of gardens and fill them out. For every participant the approval of the principal of the school is necessary. The child thus registered is expected to carry out his project under the supervision and advice of his parents and the supervisor. Beside the caring of the garden he is required to keep a careful record of all the activities connected with it.

For the convenience of supervision and instruction the children registered are organized into clubs of about 15 members each, of about the same age, of the same sex, and from the same school.

The members of each club compete among themselves for inexpensive prizes which are awarded on the basis of achievement, three-fourths of the credit being given on the garden work and one-fourth on the record kept. The one who has done the best work in each club is given a button of rolled gold. The second best is given a button of sterling silver. All those whose work comes to the average of 75% are given bronze buttons of the same size and of the same design. The

one who has done the best work among the members of all clubs is given another button made of solid gold. The school having the highest average among the garden club members attending it is given a banner.

Instruction—One of the most significant features in the gardening work in Englewood is the instruction given to all the children in different seasons. During the late winter and early spring the method of class-room instruction is followed. Lessons on different garden practices and methods, seed-testing demonstrations, and illustrations of handling garden tools are given. Automobile trips into different vegetable, fruit, poultry, dairy, and ordinary farms in the rural districts are usually arranged in order to give the children a still broader view of vegetable gardening and agriculture in general. These trips have proved greatly enjoyable and inspiring as well as instructive to the children.

In addition to this theoretical instruction a demonstration garden has been established. This was planted last year with three varieties of sweet corn, three of tomatoes, two of egg-plants, two of peppers, two of turnips, three of radishes, endive, and potatoes. It has served as a working place for several boys who were chosen on a competitive basis to do the work.

This general plan of organization and instruction is very unique in many respects. The writer strongly recommends that some such plan may be adopted by other cities with advantage.

New York.—Great stress has been laid on gardening work by local school authorities throughout the state. Instead of enumerating what has been done in some of the cities I shall describe the garden system of the city of Elmira.

In Elmira the gardening work has been efficiently carried out by the Chemung County Achievement Club. Membership in this club is open to all boys and girls in Chemung county between ten and eighteen years of age. Pupils who wish to join the club must register their names at school, pass a brief test, and start one of the projects, such as poultry raising, potato planting, gardening, and handicraft; each one of these has been minutely planned and outlined. In every case the written consent of parents or guardians must be procured before enrolling.

Group leaders, two in each school, a boy for the boys and a girl for the girls, are chosen by the members. Assistant group leaders may be chosen, one for each room.

School fairs are held in the fall at which exhibition of the products, accompanied in every case by a final report and a

brief story of how the work was done, is made by all the members of the club. Prizes are also to be awarded on the basis of achievement.

One of the most significant features of the whole system is that the projects are planned and outlined for a period of years. For instance, the gardening project covers a period of two years. What is to be done has been mapped out very carefully for the entire period. In order to show how the plan has been worked out I shall quote the following:

"Garden. Project covers two years.

"First year—April to October. Planting and caring for a plot of ground (at home, if possible), containing at least 500 square feet; raising the following vegetables: head lettuce, sweet corn, tomatoes, potatoes, cabbage, beets, onions, and cauliflower. Exhibiting one of each at the school fair, with a final report and story of work; making five monthly reports.

"Each one choosing this project is expected to enrich the plot with at least six bushels of well rotted manure or compost, and to prepare in October a compost of leaves and other waste materials for next year's garden.

"Second year—October to September. Collecting in October at least twenty bushels of leaves (packed), or five bushels of compost, piling them in the back yard, covering them with soil and tramping them down.

"Sowing Stone tomatoes in boxes at home during February.

"Planting at least 500 square feet of either Golden Bantam corn or Stone tomatoes, with a crop of early dwarf garden peas grown between the rows.

"Making five monthly reports and exhibiting either best stalk of corn with ears on it or most prolific tomato vine with ripe fruit on it."

Pennsylvania.—In the city of Lancaster, two schools maintained school gardens last summer. Beside this, the work of all school children taking part in such matters was in connection with the work of their parents in the war gardens of the city, in which some fifty or sixty acres of land were cultivated to a large extent by employees of the various industries of the city. Plans are being made to enlist many of the older boys of the schools in this work this year in addition to those who will work with their parents.

In the school district of Reading, the gardening work was signally successful. Last year over six thousand pupils, grade and high, successfully tilled gardens, and more than two thousand of them received buttons for very meritorious work. It was estimated that the value of the product was considerably more than seven thousand dollars.

Oregon.—There is a complete organization of boys and girls in each county under the auspices of the boys' and girls' club work. These boys and girls are carrying out the different projects of poultry raising, egg raising, growing corn, potatoes, and canning and baking. The Home Guard Girls are doing a great deal of work along the line of gardening and planting potatoes. A committee in every town in the state directs all the work.

Wisconsin.—Very significant gardening work is being done in the city of La Crosse. The local Garden Committee expects to have every child in the schools take home with him a card which his parents will be asked to fill out and which will give information as whether or not the family has a garden, the size of it, and whether or not the family is cultivating a vacant lot. The vacant lot assignments will be made through the schools to those people who are represented in the schools. On account of peculiar soil conditions in that city, the garden committee has prepared literature and special directions for garden work. This literature was distributed in the schools the first week in March, and has been made the subject of study and recitation. The pamphlets are also to be taken into the homes. In addition to this, lectures on agricultural subjects have been held in the school buildings for the adults.

I have tried to present in the above few pages a mosaic picture of what has been done in school and home gardens in some states of the Union. Here I wish to emphasize that Gardening can no longer be considered only as a pedagogical measure, but must be regarded as a national necessity. The first school garden in the United States was started at Roxbury (now a part of Boston, Mass.), in 1890. From that time on the school-garden movement has spread very rapidly. According to the statistics collected by the Bureau of Education in 1916, we find that 1,220 out of 1,572 city superintendents, or 78%, reported that they were encouraging some form of school-directed gardening among the children of their schools. The great diversity in the organizations, systems and accomplishments in different parts of the country has been emphatically pointed out by the Federal Commissioner of Education. In some cases school and home gardening has become an integral part of the school systems, complete departments of school and home gardening or of gardening and nature study have been maintained and separate appropriations set aside for the work. In other cities, school boards have been willing to provide instructions in garden work and the supervision has generally been left to principals and

teachers who either offered their services gratis or were paid a small additional salary for the extra work in the garden. In still other cities, encouragement in gardening has meant merely talks on gardening by teachers and principals or the distribution of seeds in bulk, and nothing more was done. These diverse conditions of gardening work in the public schools have also been confirmed by my recent investigation. But the result of my own inquiry has convinced me that, old as the gardening movement has been, the war has given it a new value and a new vitalizing force for its development. Neither the school garden as a part of school activity nor the home garden as an adjunct to the school is a new idea, but the economical and educational values of both are just beginning to be appreciated by the necessity of war. As President Hall says: "The war is a great shell shock to the world; it shatters and transforms the old institutions and beliefs." It has taken a great shock, like this war, to bring home to the schools in America, clearly and forcibly, the fact that gardening is one of the means of hitching the schools to the actual conditions of life.

In general, the economical value of gardening has not been fully appreciated by the school men in this country. Indeed, quite a few school superintendents have seriously questioned the value of gardening in food production. Here I can say very positively, without fear of contradiction, that many million dollars worth of agricultural products, vegetables, and fruits will be produced annually by the school children in the back yards of their homes and on available vacant lots, if gardening activities are encouraged, organized, directed, and supervised by the school authorities. Furthermore, the earnings from the garden activities will represent a clear gain for neither the land nor the labor would otherwise be utilized. To substantiate my contention I wish to quote at length the findings of a survey concerning the possibilities of school and home gardening made in Richmond, Indiana, two years ago. The findings of the survey are summarized as follows:

"Homes—Although located in the center of a farming region, the prices paid for vegetables are comparatively high. Prices are standardized by present methods of selling. Considering the low average labor income, the amount spent for vegetables and small fruit foods is large, an average of \$138.87 per year for a family of five persons. About 30% of the families have home or vacant-lot vegetable gardens, but the methods of planting and cultivation are not intensive, and the money value of the product is small. Of all the homes in the city, less than 10% lack space on which to make a practical kitchen garden; 30% have enough land to produce all the vegetables for the family during the productive season of the garden; and in 60% there is enough to produce fresh and canned vegetables and berries for the entire year and, in many cases, to have a surplus to sell. There is enough vacant

ground so that all of those who are without land could secure enough for a family garden. In most cases the use of vacant lots can be secured free of charge, but when it has to be rented the price of \$1 per lot is so small that it would have little effect in decreasing the profits.

"Schools—The school year in Richmond is nine months in length and the school day five hours. The children are out of school nearly half of the week days of the entire year and three-fourths of the days of the garden season. On school days less than half of the daylight hours are spent in the classroom. All of the children of the city might have occupations two hours per day on school days and four on Saturdays, holidays, and in the summer vacation and yet have enough time left for play, reading, music, and other special studies. At the present time only 9.1% of the elementary school children have regular productive occupation during vacation, 7% irregular employment, and 4.4% after school hours. In the Garfield School 10% are engaged in earning money before and after school and 25% during the vacation. Of the high school students reporting, only one-fourth have vacation occupation.

"Of 889 children in the elementary schools reporting on home garden space, 6% were without home lots, 39% had an average of 400 square feet, and 55% had 1,000 or more square feet.

"In several cities where home gardening was conducted under the direction of the public schools, the children were able to produce a net profit of 10 cents per square foot. The children of the nine elementary schools of Richmond should be able, on the basis of the number of square feet reported, to earn from their gardens a total of \$62,820, or an average per child of \$70.66. The home garden income from the 516 reporting from the Garfield School would be \$34,740, or an average per child of \$67.32."

Based on the Thirteenth Census Report we can safely say that there are about 12,000,000 school children between the ages of 9 and 16 in this country. Assuming that one-half of this number, or 6,000,000 pupils, should carry on garden work and that they should make an average profit of \$50, the result would be a total profit of \$300,000,000. This is by no means an over-estimation, both from the standpoint of the possible number of pupils who may undertake the work, and from the standpoint of the possible earnings. Reports at hand show that many city school pupils have made from \$100 to \$200 from their gardens. Under proper direction and with proper assistance, school boys and girls in the cities, towns, villages, suburban and manufacturing communities in the United States might easily earn \$100 from their gardens annually. In this period of crying need for the increase of food supply, what greater contribution can the public schools make to the nation than by directing the surplus energy of their boys and girls into this kind of productive activity!

Beside this economic value, the educational value of gardening is threefold. In the first place, gardening gives the child the best kind of moral training at the period when the school closes its door in the summer for vacation. Statistics

collected by the Bureau of Education show that about 85 per cent of the city children throughout the country remain at home during the long summer vacation, without proper employment for any large part of their time. "Many of these children at the close of school wander about aimlessly and form themselves into gangs, and give outlet to their energies in ways that are not acceptable to other members of the community or beneficial to themselves." Gardening is just the kind of work which will make a strong appeal to children's interests and meet their needs. It gives them something to do; keeps them off the streets and out of mischief when they are idle during the long vacation. It teaches them the private care of public property, economy, honesty, appreciation, concentration, self-government, civic pride, justice, the dignity of labor, and love for the beauties of nature which they can never have any opportunity to appreciate in the alleys, gutters, and dirty and noisy streets. Prof. James said: "Manual training is the most colossal improvement that ever came into the schools of America, because the boys learn to work together, to look at each other's work, and to help each other work, and become co-operative instead of selfish little imps who are trying to get ahead of their fellows and crow over it." Gardening, school or home, if properly organized and directed, possesses all these advantages of manual training with the added ones of the employment of children when they need something to do, utilization of vacant places which would not be utilized otherwise, work in the open air which is most essential for the health of the growing child, and opportunities for appreciating the beauties of nature which are often denied the children in the city.

In the second place, gardening gives the child a knowledge of things which can not be obtained in the class-room. What he learns in the garden is the knowledge of nature, of real life, instead of dead books which he can not comprehend. Here he learns the nature of the seeds, their growth, appearance of leaves, flowers, enemies of gardens, such as bugs, birds, worms, flies, weeds, etc., the nature of the soil, and the seeds that thrive best in it. He learns to use spade, rake, and other agricultural instruments by actually handling them. He learns business method by planning, managing, selling the products and recording the results of his work. He learns through his own labor and experience his own failures and successes. If "learning to do by doing" is the slogan of modern education, there is certainly no better means of realizing it than gardening work.

In the third place, gardening gives the child the best kind

of physical exercise which is most conducive to his healthy growth. This may sound trivial and commonplace, yet it is one of the most significant principles which modern pedagogy can never over-emphasize. Exercise in the open air and sunlight has been regarded as a great health invigorator; indeed, it has always been recommended for tuberculosis, particularly in its incipient stage. The garden affords an excellent athletic ground to the growing child, where he can utilize his surplus energy in a healthy and productive manner.

In addition to the economical and educational values there is one thing more I wish to emphasize; that is, gardening offers the very best means of teaching patriotism and loyalty in this time of national crisis. To-day is the day of hero-worship; the child also wants to be a hero. When young men are marching along the streets with banners floating and martial music sounding, when the young women are conspicuous in the service of the Red Cross or wearing badges of Army Relief Corps, small boys and girls thrill with a desire to play their parts as national heroes and heroines and to do something beyond the four walls of the school room. Any attempt to prevent this youthful ardor from expression will be worse than useless. Whenever there is an energy, there must be an outlet. The energy of the child aroused by war must be provided with some means of expression. I am quite convinced that gardening offers the very best means of directing this energy and enthusiasm of the child in the right way to the right ends, if the necessity of cultivating gardens is explained to him in terms of patriotic service. Make the child a part of the patriotic force of the country. Tell him that to work in the gardens is just as important and valuable a service to the country as to fight in the trenches in France. Appeal to his spirit of patriotism which is already crying for action. Can there be any doubt that gardening can be made the most vitalizing subject in the school curriculum in war time?

After this brief statement of the values of gardening I wish to offer some practical suggestions as to how it can be organized and directed in a most practical and efficient manner.

1. A thorough-going garden survey should be immediately made by the school authorities. In practically every American city there are vacant lots and back yards aggregating many acres of land which can be turned into productive soil. The school authorities must have a clear knowledge of the local possibilities before any extensive gardening program can be made.

In making the survey I should also like to suggest that

the outline on this subject prepared by the Bureau of Education sometime ago be closely followed. The following points must be carefully investigated and recorded:—the number of children in each home between the ages of 9 and 16 years, number of boys, number of girls, occupation of these children during the previous summer, income from their work, amount of land available, estimate of the value of the products that may be grown, character of the soil, amount of garden work being done, who cares for the garden, opportunities for raising fruit, means of securing the vacant lots from the owner, the amount of rent to be paid, means of securing agricultural implements, the probable amount of seeds to be purchased, etc. This is the first step which ought to be taken by every city school authority.

2. A special teacher with special training in gardening should be employed by every school having more than one hundred pupils of garden age. It is desirable that such a gardening teacher should not be expected to take care of more than two hundred children, and should be employed twelve months in the year, with four weeks vacation distributed in the four seasons. The salary of this teacher should not be less than \$1,500 a year.

When the school is in session this teacher should be expected to teach elementary science, nature study, and sometimes even manual training, and spend at least two afternoons a week, say, Wednesdays and Saturdays, in visiting the children in their homes and directing their work. During the vacation months he should spend all his time, six days a week, in visiting the children and giving them such instruction and help as they most need. He should arrange to meet all the children at least once a week during the summer in order to discuss with them problems which may rise.

3. An age-limit should be made for the children who elect gardening work. It is the writer's opinion that children below 9 years of age should not be drafted into the army of little garden workers, although some kind of encouragement should be given to them for their productive activity along this line conducted in the form of high grade play.

4. For the convenience of supervision and instruction all the children undertaking the work should be organized into small clubs. In this case the writer strongly suggests that the plan of Garden Clubs in the schools of Englewood, New Jersey, should be adopted; that is, to organize the children into clubs of 15 members each, of about the same age, of the same sex and from the same school. By this plan the children may have opportunity to work together, to look at each other's

work, and to help each other work, and their sense of healthy competition, co-operation, and goodfellowship may thus be developed.

5. A school exhibition of garden products should be held sometime in September in every city, and lectures on the achievements of the children should be given. It is at this time that the parents of the children and other people who are interested in this work should have a complete knowledge of what has been done and of what more is to be done in the future. Inexpensive prizes may also be awarded to the children who have done the best work. But the writer would hesitate to recommend the plan of giving prizes so profusely as was done in many places last year.

No uniform program can be made for all the cities and towns in this country, but the above suggestions should be incorporated in any plan which any city may adopt. They are the general principles, while the detailed program must be worked out by the local school authorities in order to meet local conditions.

II. SCHOOL CHILDREN AND FARM WORK

At the time of this writing about 150 answers to my question on this subject have been received from the county and city superintendents in different parts of the country. Practically all school systems thus heard from have made some provision for exempting children in the upper grades and high schools from school attendance for farm work. The conditions under which the children were exempted were so different and the results obtained were so diverse, that it baffles any statistical treatment on the subject. For this reason I shall try to discuss some salient points of the problem on the basis of my inquiry.

Age-limit

Very few school systems which have made provision for releasing children for farm work have taken the problem of age-limit into consideration. Many cities as well as rural districts exempted children of the upper grades and high schools to work on the farm last year, without any regard to their age. Many others exempted children at the age 14; and still others even exempted children at the age 12. In the state of Kansas, the State Board of Education last year authorized the local boards to excuse children of any age, at any time, and for any length of time, by adopting a resolution which reads as follows: "Resolved, That superintendents and

principals be advised that in view of the war situation and the food crisis, the State Board of Education will approve of granting a full year's credit to pupils who have passing grades and who find it necessary to withdraw from school before the end of the school year either to enlist in the military service or actually engage directly in food production." The state superintendent of Missouri took similar action with the exception that an age-limit of 14 years was specified. In a letter to the local superintendents last year, he said: "Excuse at once from your high school all boys over 14 years of age who will go to farms and work. Give them full credit for their year's work at the end of the school year, with the standing they have at present. Do not let any one impose on you, but have the boy who gets the credit give evidence satisfactory to you as to his work on the farm. Include boys who live in the country, and boys who will go to the farm to work. Extend the privilege to such girls where you deem it desirable." In the state of Pennsylvania, the statement from the superintendent of the city of New Castle is very significant. He says: "Under the authority of the State Board of Education last year, children over 12 years of age, who had done satisfactory work, were released before the close of school for farm labor. . . . The farmers do not take to it. They were still clamoring for experienced laborers. The town people and the children, I fear, consider it somewhat of a lark."

Action of the similar nature was taken by many other states last year. To my mind, such action is ill-advised. It is short-sighted patriotism which tends to exploit the children to their disadvantage and that of the nation. England has learned many costly lessons along this line, and found that her policy of recruiting agricultural and factory workers from school children was a policy of mortgaging the future generation for the exigencies of the present. Great efforts have been made by the British Board of Education to check the continuance of such short-sighted policy and to put a ban upon the local board in exempting children from school attendance under 14. In spite of all these efforts, 15,753 children under 14 were reported as excused from school for farm work in England, in May, 1916. What must be the situation in some of the states in this country where no restrictions on exempting children was made? America must profit by the experience of England and avoid some of the serious mistakes which England made at the beginning of the war. School superintendents and principals must all bear in mind that the compulsory educational laws and child labor laws

have been made after careful deliberation and long political struggle, and any effort to suspend them because of the conditions of war will do more harm to the nation than good.

Suggestions to the effect that children under 16 should not be sent away from home to work on farms have been made by The National Child Labor Committee and the U. S. Boys' Working Reserve after a careful study. This minimum age requirement should be adhered to by all local school authorities whenever the problem of releasing children for farm work comes up for consideration. The reason for this proposition has been very ably stated by William E. Hall, National Director of the U. S. Boys' Working Reserve. Thus he says: "We arrived at the decision to make the minimum age 16 for boys who left home to work on farms after a careful examination of all the conditions surrounding farm life. . . . After receiving the reports on the work done on the farms by boys during the year 1917, we believe that our decision was right. The U. S. Boys' Working Reserve deals almost entirely with the city boy who, in many instances, is leaving his home for the first time to live amid strange surroundings. It is most important that he be mature enough to take care of himself under all conditions and that he be strong enough to stand the rigors of hard work on the farm."

Avoid Interruption of School Attendance

In taking action on exempting children we must always bear in mind that to go to school regularly is both their duty and right. They are the assets of the nation. We can not afford to infringe their birthright of going to school under any circumstance. If the necessity of this terrible war compels us to let them work on the farms in order to save the crops, we must see to it that their school work is as little interfered with as possible. From the investigation made by the National Child Labor Committee on the causes of absences from rural schools in Oklahoma, we have come to know to what extent we have neglected the enforcement of school attendance laws in favor of farm work even in times of peace. In the state of Oklahoma the law requires children between 8 and 16 to attend school at least 66 per cent of the time it is in session. But the investigation shows that in some school districts only 66 per cent of the children met this modest requirement of the law. Of all the causes of absence from school, farm work was by far the predominating one. Furthermore, only 51.9 per cent of the farm-working absentees attended 66 per cent or more of the time. In other words, 48.1 per cent of them attended the school less than two-thirds of the time they

should be there. This was the condition in time of peace. What special precautions do we have to take in time of war, when the exemption of children for farm work is everywhere considered as a measure of national necessity?

Shortly after America's entry into the war, the State Board of Education in California was given power to reduce the school term to six months, with the approval of the governor, when necessary "for the planting or harvesting of crops or for other agricultural or horticultural purposes." In New York the Commissioner of Education was given power to suspend the compulsory education law from April first to November first during the war, "for the purpose of aiding and performing labor in the cultivation, production and care of food products and gardens within the state." The majority of the cities and rural districts heard from in the course of my inquiry exempted children last year from May to October; others, from April 15th to October first; still others, from April 15th to November first. It is quite apparent that many children have suffered tremendously from an interruption of their course of school training as a result of such action. I do not hesitate for a moment to say that action of this kind is of doubtful wisdom, if we consider the welfare of the children and also that of the nation in the long run. No matter how great the amount of the increase of food supply might have been, this was too high a price to pay.

In order to avoid serious interruption of school attendance and at the same time to meet the demands of the farmers when help can not be secured, the following suggestions may be worthy of our careful consideration.

In the city of Watertown, N. Y., the school authorities have planned to postpone the Easter vacation to the first week in May, and to designate it "planting week." Instead of turning the high school boys onto the farms at the expense of school work, they have also planned to organize these boys who are willing to undertake farm work and run the high school from eight to 12:30. In case of calls from the farmers, they can be sent out in the afternoons in automobiles into the territory where their service is needed. It is their contention, in which I concur, that ten, fifteen, or twenty boys under competent direction would do much in the afternoons, and still be able to continue their school work in the mornings.

The Board of Public Education in Philadelphia is developing a plan of organizing into two groups the high school pupils who are going to take up farm work. The first group will leave about the first of May and return for school the first of August. The second group will leave the first of August

and return the first of November. This plan will of course necessitate keeping at least one of the high school buildings open during the entire summer. But if the school work of the pupils can be protected from serious interruption by this plan, it is certainly worth trying.

In Madison, Wisconsin, the school authorities have planned to give subjects in the high school in two courses during the second semester. One course follows the usual procedure and the other will be given in a condensed and abbreviated form, to enable those boys who wish to go to the farm to finish the work of the year by April 15th. During this same period some form of practical farm training has also been planned for these same boys. They will be sent on Saturdays to machinery agencies, to gardeners whose tracts are near the city, and to some of the best farmers in order to enable them to get some insight into the activities of the farm. In addition to this, some few consecutive days may also be allowed to groups of boys who may desire to go to the country to make themselves familiar with actual farm operations. This is an excellent plan to meet the abnormal condition, but the writer can by no means agree to the proposition that the children should be excused as early as April 15th. He is quite convinced that there is no great necessity of sending the boys to the farms earlier than the middle of May.

The fourth plan of avoiding the loss of school work will be to make vacations suit farm needs. It may be well to divide the vacation into two periods; one covers the season of planting and the other the season of harvesting. It has been said that California has already been making plans of this nature in order to shift the vacations from the usual time and adjust them to the necessities of agriculture.

No one of the above mentioned plans can serve as a general solution of the problems which are peculiar to different localities. But they are very suggestive as to what may be done in meeting the difficulty. Plans may differ, but the aim should always be the same; that is, to meet the demands of war without a serious interruption of the education which is building youth in the principles of manhood and of efficient citizenship.

Scholarship Requirements

The tendency to make school standing one of the conditions under which exemption would be granted was practically universal. The general form of this requirement was that children were granted the full year's credit, if their scholarship was passable at the time when they left school. This requirement is very excellent in itself, if it be strictly carried

out. Unfortunately this was not done last year. Evidences are not lacking to show that many children in some places who did not have passing grades went to the farms in order to get credit and promotion. I can not resist the temptation to quote an amusing story about a boy in the state of Missouri and his effort to cheat the school and himself in this connection. The story runs as follows: "One boy whose father owned a farm told his father he was to leave school to work on the farm. His father said it was not necessary as he had all the labor he needed. The boy insisted and finally told his father that his only chance for promotion lay in leaving school to do farm work." This story seems too amusing to be true, but undoubtedly many cases like this must have happened elsewhere. Teachers and principals of public schools must be aware of this kind of "camouflage" and see to it that no promotion be granted to any child under any circumstance unless he really deserves it.

Furthermore, provisions should be made for the children who leave school early in the spring to make up their work in the fall before promotion is granted. It would be very unwise to give the children a guarantee of promotion beforehand. Make them work for it. The reason for this suggestion has been clearly and forcibly expressed by the statement made by the superintendent of Waltham, Mass. He says: "We are struggling with the problem this year when we are appealed to to release students for about three months. Sentiment seems to demand it. But unless students will themselves speed up and so make up the work which their classes will do, we do not see how we can restore them to their classes in the fall. While we recognize that the experience may be richly educative, we do not see how it can be substituted for mathematics or science or foreign language so as to enable the student to keep step with his class. Honesty forbids us to assure students or their parents—as some would have us do—that a boy may eat his cake and have it too, even in war time." Quite a few superintendents have expressed this same feeling. Unless some provision is made to assist the pupils in making up the work they lose, I do not see how promotion can be granted to them when they can not keep step with their class work.

Survey of the Demand for Farm Labor

It seems to be a truism that schools should not excuse children from regular school work if they are not needed on the farms. But this simple truism was ignored by many school authorities who excused children from school without knowing

where the children were going to work or whether they were needed. In New Jersey one camp of boys was organized last summer under the State's Junior Industrial Army and housed in a high school building. But there was not enough work in the vicinity to keep the boys busy, so they were found mowing lawns and trimming hedges on large estates or pulling weeds out of the city roads. In New Bedford, Massachusetts, 35 high school boys went to the farm, but their camp was soon broken up for the reason that there was not enough work to pay for keeping the camp going. In Watertown, New York, high school boys were permitted to leave school for farm work. The expectation was that they would continue the work throughout the summer. But on the first of July most of the boys returned home and went to work in munition factories on account of not having enough work on the farm. Examples like this can be multiplied indefinitely. The educational loss in these cases is enormous and also inexcusable. I can never over-emphasize the statement that such or similar conditions should never be allowed to happen again.

In preventing such conditions from happening again, I believe what is being done in Indiana is worth noticing. In an endeavor to ascertain the demand for farm labor in the spring the Federal State Director of the U. S. Boys' Working Reserve has sent out a questionnaire with return card to the farmers requesting them to consider their possible need of farm labor and report such need to the headquarters in Indianapolis. The following is the return card in full:

"Name Postoffice Address
 County Township
 Nearest Railroad Station Name of Railroad.....
 Telephone Nearest town

Without definitely obligating myself, but rather to give you some indication as to what I anticipate in the way of labor requirements next spring and summer, I hereby notify the U. S. Department of Labor, through the State Council of Defense for Indiana, that I probably can use boy or boys, 16 to 21 years of age; whom I shall need(date). I am willing to pay dollars per week with board. I am willing to pay dollars per week without board.

In consideration of the service they are going to render me, I shall gladly co-operate with them in their efforts to succeed and will be patient and considerate of them. I realize that their presence on my farm will be indicative of the patriotism they possess and therefor deserving of an equal amount of patriotic effort on my part to build of them fine, up-standing citizens, equipped for the man's job which of necessity they now must shoulder."

Something of a similar nature was also done by some cities last year. The school authorities in Louisville, Kentucky, stood ready to take action last spring to excuse high

school pupils for farm work. But before taking this action, they made a survey of the demand for such labor among the farmers and truck gardeners of the surrounding country. Of some three hundred addressed but one was positive that he could use such help. A second gardener implied that he might consider doing so in the name of patriotism. In Milwaukee, Wisconsin, the machinery of Farm Placement Work was set in operation, although no survey of the labor demand had been made beforehand. The entire Farm Placement work was placed in the hands of one attendance officer, with the assistance of the Rotary Club of the city. The result was that all children excused had places on the farm.

All these measures are worth imitating. We must be sure that there is need of child labor on the farm before we exempt the children. Failing to do this will greatly harm the cause of public education.

Training Children for Farm Work

In spite of the popular clamor for children on farms, quite a few superintendents have stated that farmers did not want to employ city boys as many people thought they would. This general testimony corroborates the findings of the investigation made by the National Child Labor Committee last year. In an attempt to find out the demand for child labor on the farm, the National Child Labor Committee sent out a questionnaire to all grange officers throughout the country asking if farmers in their vicinity wanted city children to work on their farms. Of all the replies, 72 per cent said 'no.' Some of the reasons given for this negative answer were as follows:¹

"City boys are not worth their keep on a farm."

"The work is too heavy for children."

"City boys do not understand how to drive a horse or handle machinery."

"Horses are too valuable to trust to children."

"There is nothing for children to do in this vicinity as we do our work by machinery."

"It would take two farmers to one boy."

"Tending small corn is a delicate business for a city-bred child, while haying and harvesting are too heavy work for one not accustomed to labor in the hot sun."

"How would manufacturers like to have green hands come into their shops for a few days? The same question can be applied to the farmer in trying to work school children who would simply be under foot."

From these sample statements one can clearly see that

¹National Child Labor Committee. Pamphlet-277.

farmers do not want city boys who are not familiar with the farming operations or too young to undertake the heavy task that farm work often involves. But city boys over 16 years of age with good health and alert minds can learn the rudimentary farming operations in a week or ten days, if proper training be given to them. The work accomplished by the Agricultural Cadets last summer in the orchards and fields of Betsy River Orchard Company, Michigan, may serve as an excellent illustration of this point. When the superintendent of the company was asked to give his opinion about the work done by the boys, he made the following statements:²

"The first week or so the boys were not much good. None of them had ever been on a farm before, and they didn't know a horse from a cow. But they were quick and eager to learn, and from the start they took a keen interest in learning how to work. . . .

"When we sent them out to spray an orchard, Bob Johnson, my Michigan Aggie man, would go along and teach them how to do it. He worked along with them until he was absolutely sure that they could be trusted to do the work right before he left them any work on their own responsibility, and even then he would go back every hour or so to see how they were getting along. We soon had them doing the more simple work, like hoeing potatoes and beans, but even there you would be surprised how much teaching we had to do—showing them the difference between beans and weeds, for instance.

"Later, we had them doing more particular work like spraying, and of course, had to begin at the bottom to teach every time we changed jobs. It was noticeable, however, that we rarely had to show them a second time. The boys learned very easily and quickly and really tried to do their best."

The ways of training boys for farm work are many, but only two can be mentioned here. In the first place, an intensive farm training camp may prove very effective for the purpose. The most noteworthy case of this kind is the training camp which is going to be established in Indiana. On a 640-acre farm loaned by Straus Brothers Company the U. S. Boys' Working Reserve will build a farm training camp where boys between 16 and 21 will be mobilized and given a three weeks' intensive farm training in the rudiments of agriculture and actual farm operations. As a group of boys completes its three weeks' training, it will be sent to different places to work. The whole plan is analogous to the officers' training camps. I have no doubt that such a plan will prove to be very valuable in increasing the efficiency of young farm

² Boy Power. Jan. 1918. P. 8.

workers whose ignorance of farming operations has constantly been a great embarrassment to their employers and themselves.

In the second place, the plan of introducing a practical course of agriculture in the curriculum of high schools, as is being done in Illinois, is by far the best one so far devised. Beginning the first of February, the boys in the state of Illinois enrolled in the U. S. Boys Working Reserve were made to speed up on their studies for the ensuing three months, and in addition were required to take the 25 Farm Craft Lessons which were prepared under the direction of Dean Davenport of the University of Illinois and which were designed to give them a practical knowledge of horses, livestock, dairying, poultry, seeds, fertilizers, farm tools, gardening, gas engines, crops, planting, and harvesting. Credits will be given for this special work done in school and for the practical work in the summer months.

Beside this class-room instruction, practical work in the use of farm machinery, caring of the stock, harnessing and handling horses, etc., has also been provided, and the boys have been taken on field trips to stockyards, stock shows, farm exhibits and local agricultural fairs.

This plan is unique in its character and practical in its scope. By this plan the schools are made to teach the pupils to play the real game of life of which city-bred boys are often grossly ignorant. What is being done in Illinois can certainly be done elsewhere with equal advantage and success.

Organization, Inspection, and Supervision

The problem of organization, inspection, and supervision of the boys at work is infinitely more complex than any one of the points so far discussed. Every locality has its own peculiar problem to solve. Plans which have been worked out in one place may be utterly inadaptable to any other place. Consequently discussions of this problem can be made only in very general terms.

Taking the country as a whole, there are three main conditions under which the boys may work on the farm. First, one or two boys may be employed by a farmer and live with him. Second, boys or groups of boys may work on a nearby farm and live at their own homes. Third, boys or groups of boys may work on farms, many miles away from their homes, and live at farm camps. In each of these cases some kind of inspection or supervision must be provided by the local Board of Education in co-operation with other state or local agencies.

In the first case, the most important problem is the placement of the child. The environment in which the child is going to live, the kind of work and the hours of labor which the child is expected to perform, and the wages which the farmer is willing to pay must be investigated before the child is definitely placed. The farmer is just as likely to exploit the child as the manufacturer. Unless some definite agreement is made with the farmer beforehand, it will be unwise to leave the child to him for his exploitation. We must remember that to utilize boy-power for food production is to meet the present exigency of national crisis, not to supply the farmer with cheap labor. What was done in Grand Rapids, Michigan, is worth noticing in this connection. Last year about three hundred boys in the upper grades and high schools were carefully placed on the farms by the school authorities. The Board of Education employed a competent man to visit them and adjust their difficulties. This seems to be one of the many ways in which the school can safeguard the children from undesirable environments, over-work, exploitation, and neglect.

In the case of boys or a group of boys working in the nearby farms and living at home, some kind of organization seems to be very necessary in order to secure satisfaction for all concerned. Just what kind of organization is necessary for any particular place is a question for the local school board or other social agencies to decide. But I shall describe the system which was worked out in Idaho, in order to throw some light on the question.

In the southern part of that state there was a great need of labor to harvest the fruit crop and alfalfa last year. Appeal for help was made to the school authorities and many boys were permitted to go to the farms. They were organized into groups of ten. Every group elected its own captain in whom the power of discipline was invested. The captain's words were law during work hours, whether in the orchard or in the hay field. In no case did the farmers deal with the boys directly. Everything was done through the captain. If they had any orders to give, they gave them to the captain, who, in turn, passed them to the boys. Now and then disputes arose over counting the boxes of fruit picked by the boys, but they were all adjusted through the captain. This squad organization has proved to be very satisfactory, both for the farmer and for the boys themselves. Furthermore, organization of this kind has to some extent solved the problem of transporting the boys back and forth between their homes and the places of their work. Through the co-operation of the business men in the towns of that state who volunteered the use of their machines,

the boys were taken out of the cities and towns to work at 7 o'clock in the morning and taken back to their homes at night. One can easily imagine how such squad organization has helped in solving this transportation problem.

With regard to the organization of farm camps, there are three things which merit our attention. In the first place, a camp should not be established in a place where there is not enough work to keep it up through the summer. This seems to be a commonplace truth, yet many undesirable results have happened merely on account of ignoring it. In the second place, camp sanitation must be strictly observed in order to safeguard the health of the boys. In the third place, one camp supervisor for every 25 boys should be appointed and paid by the state. He should be a man of character and initiative, a man who possesses an insight into the nature of adolescent boys. A successful scout master will be just the person for such a task. These are only general principles. For detailed organization the service of the camp experts should always be sought.

Educational Value of Farm Work

After this brief discussion of exempting school children for farm work we may say that there are difficulties yet to be obviated and problems yet to be solved. But we should not let these difficulties and problems blind us to the fact that farm work for city boys of adolescent age possesses an educational value which can not be surpassed by any subject in the high school curriculum. In farm work city boys gain a knowledge of real things and of real life which they can never expect to gain in reading a few pages of Latin grammar or in working out a few puzzles in geometry. Far be it from me to minimize the educational value of farm work for boys of proper age, under proper organization, training, and supervision. It would mark a great step of advance in modern pedagogy, if city boys between 16 and 21 were given an opportunity to be employed on the farm during the long summer vacation, in order to get in contact with nature, to appreciate the realities of life, to gain first hand knowledge of animals, plants, trees, and fields in an unsophisticated manner, to recognize the dignity of labor by actual participation, to increase their physical vigor by working in the open air and sunlight, and to shift their usual interest in gangs and in loafing at the street corners and gutters to productive activities which are both beneficial to the community and to themselves. But the writer strongly objects to any action of letting children out of school with the expressed purpose of supplying the farmer with labor without any consideration of their

physical capability or incapability of undertaking heavy farm work, without any knowledge of where they are going or how they are to be employed, without making any provision for them to make up the school work they lose in order to enable them to keep pace with their classes, and without any definite plans of organization, inspection, and supervision of the boys at work, to safeguard their physical and moral well-being. The children of to-day will be the citizens of to-morrow. If the function of the school is to train children for good citizenship, then it is the duty of the school masters to see to it that the children's interests—interests which are most vital for their physical, moral, intellectual, and spiritual growth—are carefully protected.

In addition to the protective measures to be adopted in connection with exempting children for farm work, there is one more suggestion I wish to make, that is, a course in practical farming should be made a required subject of study in every high school throughout the country. It is absurd to preach the dignity of labor to children and yet not consider the elements of labor worth the dignity of being taught in the school. If farm work is expected to be taken up by boys of proper age, in order to increase the food production of the nation, then a practical farm course should certainly have a place in the school curriculum. What has been called Farmcraft Lessons introduced in Illinois high schools (referred to on p. 186, should be adopted by all the high schools in every state of the Union. Subjects like the feeding, care, driving, and working of the horse, the care and milking of the cow, the care of cattle, pig, and sheep, the process of raising poultry, the handling and the care of wagon and plow, the use of manure and artificial fertilizer, the use and care of shovel, spade, hoe, rake, pitchfork, and other tools, the recognition of weeds and their destruction, the harvest of hay and grain crops, the operating and care of farm machinery, the ways of building fences and gates, etc., should be taught to every boy who passes through the door of the high school. Knowledge of this kind is both practical and useful and possesses a fascinating nature to the boys, urban and rural, rich and poor, alike. Pedagogues who have been in the habit of reducing everything introduced into the school to scholastic hypermethodic form can not and will not appreciate the educational value in planting potatoes, in picking fruits, or in operating a harvesting machine in the grain field. But their conservative view must be changed. The value of school subjects is being tested by this world war. The simple, plain, and sun-clear reasons given by farmers for their unwillingness to employ city boys

on their farms should give the pedagogues some food for thought. High schools have always been a stronghold of conservatism. We have been teaching the general principles of drawing, mathematics, physics, chemistry, etc.; but the physics and chemistry of nothing in particular. We have been teaching botany, zoology, and other natural sciences, but they are to be studied by sections through a microscope. The knowledge thus gained by the boys is most fragmentary in nature. They lose sight of the unity in the subject itself and its relation to civilization and social weal. Can we wonder why city-bred boys can be of very little service on the farm and farmers do not want them? If the war has compelled us to utilize boy-power on the farm as a national necessity, can we advance any argument that practical farming operations should not be taught in the schools?

Conclusion

In conclusion, I may say that gardening is not a movement started by the war, but war has made us appreciate its value. Under proper organization and direction, it helps to increase the agricultural output of the nation and serves to vitalize the school curriculum. What we are doing to-day under the necessity of war must be continued in time of peace.

Farm work for boys of proper age is a real education in itself. It should be encouraged, organized, directed, and supervised by the school authorities, war or no war. But to exempt children from school attendance for farm work is a war measure and can only be justified by the real needs of war. It can only be done under the most carefully regulated conditions. Let me repeat the slogans now prevailing in England: "The child is the nation's greatest treasure," and, "We have no right to handicap these children because of the State's necessities of the moment."

THE PUBLIC SCHOOLS AND FOOD CONSERVATION

By PING LING

Next to food production, to which the last chapter has been devoted, food conservation has been one of the greatest and most important problems confronting the American people since America entered the war. Its immensity and complexity are in many respects much greater than the problem of food production, because it requires the voluntary effort, co-operation and self-denial of every man, woman and child in the country. We can persuade a well-to-do person to buy Liberty Bonds and to buy a good many of them, because they are a good and safe investment. We can also ask him to contribute and to contribute very liberally to the funds of the Y. M. C. A., Red Cross, and other charity organizations connected with the war, because contributions of this kind always reflect the generosity and philanthropic spirit of the giver. But can we still count on him as a patriot when his appetite is touched? We can teach a child to plant potatoes and vegetables in his father's back yard, because work of that kind appeals to his working impulse, and we can also appeal to the grown-up boys to work on the farm because there is a good deal of fun in the work and good wages beside. But can we still count on them as a part of the patriotic force when they are asked to conquer their candy-eating habit and to reduce the unnecessary consumption of certain foods which they used to have? The spirit of sacrifice can only follow the intelligent appreciation of the situation. If in a democracy the autocratic control of food supply, imposed from the top, and backed by the "mystery of law" and the sword of the police, is to be avoided, then the American people must appreciate the seriousness of the national and international food crisis and respond loyally and voluntarily to the appeal of the government in whatever measure the Food Administration deems necessary. Our faith in democracy is being tested. Failure in the voluntary system of food conservation will be a greater blow to democracy than the loss of a great battle.

In studying the progress of the food conservation campaign, Mr. Edward Earle Purinton has made a most noteworthy statement as follows:

"The food pledge-card campaign recently conducted in

American households by the Food Administration has brought to light an astonishing and appalling state of things. I have before me a typical war food report on the household canvass, from which I will quote.

"This community stands among the first twenty of its size in America for intellectuality and prosperity. It has a famous university, a group of flourishing factories, dozens of women's clubs, the most and first-rated banks of any city of equal size in the state. You would expect people here to be of a high patriotic order, of superior conscience and intelligence. Read the facts.

"The pledge cards required nothing difficult, only asked that each family does its best in avoiding waste, and conserving meat and wheat during the war. Out of 2500 families in this highly favored community, the heads of only 800 families responded to the government appeal, the other 1,700 positively refused, or conveniently forgot, to sign and return the cards. Only 32 per cent of the families of this representative American city are patriotic as far down as their palate.

"When the official agents of the government called with pledge cards at the homes of these 1,700 householders, they met with answers like this:

'Our food is our own and we don't want anybody to meddle.'

'We work hard. Why shouldn't we eat what we want?'

'I tried to send a chicken to my son in France and the government wouldn't take it. I will never do anything for the government again.'

'My husband doesn't like corn bread.'

"The human beings who made the assortment of remarks quoted above are not the poor, illiterate foreigners you would naturally consider them. No, they are the choice inhabitants of a place that proudly calls itself the intellectual Athens of the state.

"Among those who refused to consider meatless, wheatless or sugarless meals, the largest number stated positively they saw no reason for such a war measure, and they would not subscribe to it unless they were shown the necessity for it."

Reports like this may be a trivial incident of the whole food campaign, yet it is very significant, because it shows very clearly and definitely that the food campaign must be accompanied by a campaign of education, if the compulsory rationing system should be employed only as the last resort. Average people can not visualize the close relationship between food and war. They must be informed with regard to the essential facts of the world food situation and made to realize that food conservation is a patriotic duty. They must also be taught with regard to the essential facts of food values, so that the

general principle of the elimination of waste, the substitution of certain foods for others and the lessening of unnecessary consumption be properly understood and practiced. A campaign of education will always remain the most important factor in a voluntary system of food control. We have no other means to choose.

In this campaign of education the schools in this country, as a branch of governmental activities, have a very great and very immediate task to perform. They must teach the children who are in their trust the problems of food supply in this country and in the allied World, the relative values of different foods, and the ways of eliminating waste, in order to make them understand the larger implications of the food problem, to cultivate thrifty habits, and to arouse in them a higher sense of patriotism, loyalty, self-sacrifice, and collective responsibility. They must also extend their influence to the homes and the community they serve in direct and indirect ways with regard to this great undertaking of national food conservation. Through organization and direction of parent-teacher associations, through establishment of lecture and instruction courses for adults, and through other similar means, they can serve the country as a center of publicity and dissemination of vital and practical knowledge and of demonstration of practical methods of meeting present demands for better provision and utilization of food products and other necessities. It is their opportunity to demonstrate their usefulness to the nation and their ability to meet national needs at this crisis. Here is the opportunity, but how to make use of it?

In an investigation of the effect of war upon education the writer included in the questionnaire sent out to school superintendents the following question:

"What have your schools done for food conservation, such as signing pledge cards, teaching economy, cooking, etc.?"

The answers to this question are much less definite and clear than was expected; only a few of them have indicated what has been done and how much has been accomplished. My impression is that public schools in general, particularly those in the rural districts, have not fully grasped this unique opportunity in serving their country along this particular line. It is the purpose of this chapter to show what the schools and school teachers can do in this great national movement.

TEACHING THE CHILDREN TO CONSERVE

In teaching the meaning, necessity, and practice of food conservation, public school teachers can utilize practically every subject in the school curriculum. With possibly the exception of Latin, Greek, and other foreign languages, there

is no subject which can not be taught with great advantage in connection with some phase of food economy. Let us first consider:

Geography.—Geography lends itself very readily in teaching children the problems of food supply of the world in general and of the allied countries in particular. In teaching the climatic conditions of the world, it may be well to point out that the principal food producing countries as well as the consuming countries, are in the temperate zones. Except coffee, cacao, sugar, and fruits, the tropics are not at present producing important foods in great quantities for the hungry world. In the north temperate zone the three great food producing regions are eastern Asia, central and western Europe, and North America. In the first of these regions the amount of food produced can only support its own enormous population. In the second of these regions the population is too great and supplies have to be drawn mainly from the third region to make up the deficiency. The south temperate zone can also produce foods for the densely populated places in the south like Argentine and Australia, but either of them is too far from the markets and the bulky grains and meats require a tonnage that the world in this time of war can scarcely spare to bring them to the shores of Europe. Furthermore, the capricious rainfall and the occasional drought in Argentine and Australia often produce disastrous result upon the crops, so they are not a very reliable granary for the European importing countries. Facts of this kind can be readily made adaptable to the class-room discussion and interesting and motivating to the children.

Next to the sources of world food a geography teacher may also teach the specific problems of wheat, sugar, meat, and other animal foods of the Allied Countries, with special emphasis upon America's part in solving them as her proper share of war labor. With regard to wheat, the teacher can first give the children some general idea about the normal production and need of European countries in times of peace. Russia, Roumania, and Bulgaria were all wheat exporting countries. Austria-Hungary was a self-sufficing country as far as wheat is concerned. Of all other European countries, France, Italy, Germany, Spain, and Great Britain were all large producers, but their production could not meet their needs. They took 60 per cent of the total world's surplus of wheat for their consumption. Holland, Belgium, Switzerland and the Scandinavian countries largely depended upon the importation of wheat for their very existence. The importation of wheat into Europe, aside from what came from Russia and Rou-

mania, was principally supplied by the United States, Canada, Argentine, India, and Australia. It was estimated that these seven countries furnished 94 per cent of the world exportation of wheat.

This was the condition in times of peace. What is the state of world wheat in time of war? The teacher can then with the map of the world point out to the children the reason why Russia could not send her wheat to the Western Allies by the closing of Bosphorus, and why the exportations from India, Australia, and Argentine can not be easily brought to the European market, because of the shortage of shipping through the destruction by submarines. As a logical sequence of the discussion, the teacher can further explain the reason why the United States is obliged to supply the deficiency of wheat to the three great Western Allies, England, France, and Italy, in order to maintain their gallant troops in the fields, to feed their great armies of men and women in the munition factories, and to keep their women and children at home from actual starvation. With this general treatment of the facts, the teacher can bring very forcibly and clearly to the minds of the children the reason why they should do their bit to conserve wheat in order to win the war.

With regard to the sugar supply, the geography teacher can also enlighten her pupils in a similar manner. The problems of the total sugar production in the world, the countries that had led in sugar production, and the causes of sugar shortage in Europe since the war began, can all be brought into discussion in the classroom. In the year preceding the war, 1913, the world sugar supply was given at 20 million tons in round numbers. Of these 20 million tons of sugar, 11 million tons were cane sugar and the rest were beet sugar. A large percentage of the cane sugar of the world has been produced in Cuba, India, Java, and Hawaii; and a very large percentage of beet sugar was produced in central Europe before the war. The pre-war production of sugar in Germany, Russia, and Austria-Hungary constituted 67.4 per cent of the total beet sugar and 32.4 per cent of the total sugar supply of the world. They were enormous exporters. But since the outbreak of the war this normal condition of European sugar supply has been radically changed. The English blockade has cut off the export market for Germany and Austria-Hungary, so sugar beet production in these countries gave place to other crops. The sugar producing regions in Belgium and northern France have been under Germany's control, so they were deprived of their usual sugar supply. As a consequence of these changed conditions, the Western Allies, particularly Great Britain, have

to obtain their needed sugar importation from the tropics. But the establishment of new sugar plantations and the installation of new machinery for sugar manufacturing in the tropics can not be achieved in a short time, so the increase of sugar cane production can not meet the deficiency created by the upset of the sugar industry in Europe. America can not supply the Allies with sugar, because she herself has been the greatest sugar importer of the world. But she can greatly reduce her consumption so that the Allies can obtain the minimum amount of sugar for their people. To my mind, facts like this are infinitely more valuable to the children and will be better remembered by them than the names of rivers, mountains, or cities of some remote regions which they can neither visualize nor comprehend.

Similarly the problems of beef, pork, mutton, milk, cheese and other animal foods can also be treated by the geography teacher.

What has been said is merely suggestive as to how the problems of food supply may be taught in connection with geography. No attempt has been made to show the selection of material, or the detailed method of instruction. It is my belief that a resourceful teacher will always find that instruction of this kind will prove practical, useful, interesting and inspiring to the children.

Current Events. This is a new kind of instruction given in a great many schools since the entrance of America into the war. The purpose of this course is to keep the children informed about the outstanding events of the world from time to time. Considering the nature of this course I believe the teacher can and ought to draw a good deal of material of food conservation for her instruction. The policy of the Food Administration in this country and the drastic measures adopted by the Allies in food control should receive special attention in a class of this kind.

Take the problem of wheat. The Italian government has decreed that wheat must be milled at 90 per cent (which means that only 10 per cent of the whole wheat kernel does not go into the flour). The flour thus obtained from 90 per cent milling goes to make the war bread. In England wheat is milled at 81 per cent and to the flour thus obtained flour made of other cereals is now added, in amount of from 30 to 50 per cent. In France wheat is now milled at 85 per cent. Flour made from other cereals must be mixed with this wheat flour to the amount of 30 per cent.

Furthermore, the baker's trade in the Allied Countries has been rigidly controlled. In Italy bread may not be put on sale

or given for food until the day after it is baked, and it may not be treated by special processes to keep it fresh. No sweet pastries may be made whatsoever. In England the use of flour has been restricted to four pounds per person per week. In France, bread is distributed on a bread card system, which permits each child of from one to six years to have 10½ ounces of bread per day; and each person over six years, 1 1/10 pounds of bread a day. No pastry or fancy cakes may be made.

Simple facts of this kind are very important for the public to know. Americans who have been asked to conserve wheat, meat, sugar, and other foodstuffs for the sake of the Allies have a right to know what the Allies are doing themselves in the way of food economy. It is the duty of teachers who teach current events to tell children these facts and through the children to enlighten the public.

English. The teacher of English can use much of the material of food economy as a basis for oral and written work in her class. Subjects like "Why must we conserve wheat? Sugar? Meat? etc." are very excellent for English composition work, both for the grades and for the high school. Supply the pupils with the necessary facts and make them use these facts as a basis of judgment of their own. Composition work of this kind will set the pupils to thinking intelligently in terms of community welfare and national necessity. Debates or essay contests between classes and schools can also be very conveniently arranged on such subjects, as was done in some school systems last year. A modern English teacher with sound pedagogical training will not fail to see the advantage of using such material to vitalize instruction. It gives the children food for thought and enables them to express such thought in definite, clear, and unmistakable terms.

As an illustration of my contention I reproduce two compositions; one was written by an eighth grade pupil in one of the elementary schools in Worcester, Mass., and the other was written by a German child in a German common school. They are as follows:

"THE CONSERVATION OF FOOD"

(By F. R., 14 years of age. Worcester, Mass.)

"To win the war food must be conserved. The United States has 1,500,000 men under arms at present to be trained for war. These men as well as those of our Allies must have substantial food to withstand the rigors of trench life.

"Wheat, sugar, fats and meats are good solid food for the Army and Navy, and in order to have enough for all, the people at home must conserve these products. By conserving everywhere and by having war gardens there will be enough for the soldiers in the trenches, the sailors on the sea, and the people at home.

"So, make a special effort to save food for our soldiers, for our Allies, and for freedom and victory."

"MUST WE GO HUNGRY?"

(By a German child, 14 years of age. Germany, 1915.)*

"Since England can not match us in strength, she has cut us off from all food importation in order to starve us out. Each one of us may now ask himself: Are we to let ourselves die of hunger? With good conscience we can answer: 'If we are economical with all the foods we have and do not continue to live in the habitual manner, we shall come out all right.' With wheat, flour and vegetables we must be sparing. The State regulated the distribution of wheat flour because we had been eating too much. The Roumanians, to our great joy, have sent us trains of wheat flour. On account of the shortage of potatoes the State issued an order forbidding the distilling of alcohol and the feeding of swine with potato. As we hear, the tilling of the fields in the East and West is going on from 8 kilometers behind the front. From Belgium we obtain early vegetables, and from Russia, quantities of grain. We Germans eat more meat than the other people in Europe, namely 58 kilograms per person. We must limit our use of meat and enjoy vegetable diet. To eat moderately and to chew thoroughly are the principal conditions. If we observe this, the starvation policy of England will also go to naught."

*Stern. Jugendliches Seelenleben und Krieg. p. 177.

Arithmetic. In order to show how arithmetic can be used as a means of teaching the different phases of food conservation, Farmer and Huntington have recently published an excellent book, entitled "Food Problems," which was intended for the reference of the elementary school teachers in arithmetic. The whole book consists of 173 problems, and each one of them was introduced with the definite aim and purpose of teaching children the real meaning and importance of saving food. The following are some of the problems stated.

1. "Mr. Hoover asks each of the 100 million people in the United States to save 1 ounce of meat each day, 1 ounce of sugar each day, 2 ounces of fats each week, and 1 pound of wheat flour each week. If we all do this,

- a. How many tons of meat
- b. How many tons of sugar
- c. How many tons of fats
- d. How many 196-pound barrels of flour will be saved for the nation each week? How many a year?

2. "The United States Department of Agriculture states that 700 million dollars has been wasted in homes in this country every year by throwing away food which might be used. There are 20 million families in the United States. What is the average waste for each family per year? Per month? Per day?

3. "In 1916 the following amounts were spent in the United States:
- | | | |
|-----------------------------|------|----------------------|
| For patent medicine | 300 | millions of dollars, |
| For tobacco | 600 | " " " |
| For jewelry | 200 | " " " |
| For wines and liquors | 1669 | " " " |

a. If all these amounts were saved, how much would be the total saving?

b. At the rate of one billion dollars per month for the war, for how long would the total saving finance the war?

4. "The average use of wheat flour in this country is about 4.9 pounds per person each week.

a. If on wheatless days no wheat flour is eaten, and normal amounts are used on other days, what will be the average saving in flour by each person each week?

b. For a city of 30 thousand people?

c. For the whole nation of 100 million people?

d. About how many 196-pound barrels will be saved by the nation weekly?

5. "Assume that 1 ounce of meat is wasted each day in each of the 20 million homes in the United States.

a. How many pounds? How many pounds per year (360 days)?

b. If the average dressed weight of cattle is about 525 pounds, how many cattle would it take to supply this annual waste?

6. "If each of our 20 million families wastes one-fourth ounce of butter daily, find how many pounds are wasted each day. How many tons each year?

7. "Mrs. White wastes a cup of sour milk each week by throwing it away. Milk costs 12 cents a quart in the city where she lives.

a. How much money is wasted yearly in the White home by throwing away milk?

b. Compute the waste if this happened in each home in your city, your state, or the nation.

c. What would be the total value of the milk wasted in the United States at 10 cents a quart? At 8 cents a quart? At 6 cents a quart?

8. "Each person in the United States consumes on the average 90 pounds of sugar each year. He needs only $\frac{4}{5}$ pound a week.

a. How much is consumed each year that is not needed? How much could be saved if the average use of sugar by each of the 100 million persons in this country were reduced to what is needed?

b. Our Allies need 2700 million tons of sugar. What per cent of this could be secured through the above saving?"

From these few sample problems one must be greatly impressed with the ingenuity with which these problems were framed; and one must also agree with the authors' statement that "the purpose of these problems is not to teach arithmetic; it is to use arithmetic to teach the meaning, necessity, and practice of food conservation." Through the working out of these problems the children will find out for themselves that no waste is too small if it happens in every family, and that no saving is too trivial if it is made by every one. Children in the elementary schools are in the most impressionable period of their lives. Problems of this kind never fail to stir their emotions, stimulate their imagination, and arouse their spirit

of self-denial and sacrifice. The writer strongly recommends that this book be in the hands of every teacher who has charge of teaching arithmetic in elementary schools.

Physiology and Hygiene. The teacher of physiology and hygiene has undoubtedly a great opportunity to use materials which are close to the children's activities and interests. Instead of burdening their memory with the technical names of bones and muscles, she can teach the quantity and quality of food desirable and the relative values of different foods which are common in the market. Of all the health habits which modern pedagogues must endeavor to inculcate in the children, the habit of correct eating is the most essential. Of all the elements of health which modern pedagogy has emphasized in the hygiene of school children, the relation of food to growth has received the least attention. I believe now is the high time for the teachers of elementary physiology to rejuvenate their traditional methods of instruction. The different food values reduced to the simplest language will be both more beneficial and comprehensible to the children than any material which we commonly find in elementary text-books of physiology.

One of the chief objections in teaching food values to children is the hopeless incomprehensibility of the technical language used in the copious literature on the subject. The only way of measuring and determining the amount of food we need is by the caloric method. But the word "calory" is utterly unintelligible to children. Not only children, but also lay people, as a rule, have very little conception of what is meant by a calory. Not only lay people, but also many physicians have a very hazy idea of what is meant when they say that an individual should have 2,200 or 3,000 calories a day. We commit a great pedagogical error, if we ask children to remember by heart that so many grams of a certain amount of food equal so many calories, and so many grams of another kind of food have an equal amount of caloric value. Children of elementary schools can not visualize the amount of food measured in grams, nor can they translate the caloric value of food into intelligible terms to themselves. But what are we going to teach and how are we going to meet this difficulty?

Dr. William Emerson of Boston has reduced the common unit of 100 calories (which was first introduced by Dr. Irving Fisher) into most familiar terms such as teaspoonfuls, cupfuls, and so on, so that common people or even children can understand. For instance, two table-spoonfuls of lima beans equals 100 calories; one ripe banana equals 100 calories; one roll

equals 100 calories; one pat of butter equals 100 calories; four of the ordinary Uneda biscuits equal 100 calories, a lean portion of one lamb chop equals 100 calories; twelve double peanuts equal 100 calories, a piece of fish about the size of the palm of the hand equals 100 calories; a teaspoonful of peanut butter equals 100 calories; and so you can go through the whole list of common foods which are found in the ordinary family table.¹ Beautiful charts have been made on this basis. It has been said that by this method Dr. Emerson has been able to teach dietetics to delicate children of even seven or eight years of age with regard to the amount of calories they have taken a day and the amount they still need to make up their quota. It seems to me that a great advance has been made in dietary instruction by translating the number of calories into familiar measurements. It is both practical and useful for teachers of physiology and hygiene to make use of such material, not only on the ground of the national necessity of the moment but also on the principle of sound pedagogical methods. They can not expect to be excused or forgiven for neglecting the instruction of this kind.

Furthermore, instruction on food values is of paramount importance for the protection of the children's health. Many children from wealthy homes are being overfed and still more children have a harmful habit of excessive indulgence in eating candy. In one school, which was investigated, it was found that the boys were each receiving about 5,500 calories daily and in addition were getting about 500 more outside in the form of candy. There is no doubt that they were tremendously overfed. The evil result of over-feeding is just as bad as, if not worse than, that of underfeeding. We have been trying hard to have free school lunches for the destitute children. Have we done anything to enlighten the overfed children so that their vital organs may not be overburdened by the unnecessary amount of food?

Excessive indulgence in candy eating is responsible for loss of appetite and decay of the teeth. From the reports of medical inspectors of public schools in different parts of this country we find that approximately 50 per cent of the school children have bad teeth. This lamentable state of affairs may not be due to the candy eating habit of the children concerned, but we can not deny that the candy eating habit is one of the factors responsible. In recent years educators in this country have been clamoring for free dental clinics for school children, but why should we emphasize a pound of cure

¹Landis, H. R. M. Dietary Habits and Their Improvement. *Annals of Am. Acad. of Science*, vol. 74, pp. 103-108.

and neglect an ounce of prevention? American children, poor and rich alike, are in the habit of spending their pennies on candy which they do not need. They buy caramels, chocolate, and hard candy from the pushcart men or the small candy store near the school house. In many cases the school authorities are in a hopeless position to prevent the children from doing so. Attempts have been made by some teachers to teach the children not to eat too much candy, but their efforts have been pitifully ineffective. Now there is a great opportunity for teachers to correct such harmful habits of children in the most effective manner by an appeal to sugar conservation. Make sugar conservation a patriotic service. Pedagogical enlightenment coupled with patriotic motives will not fail to accomplish desirable results.

Home Economics. The ways of teaching food conservation in the classes of home economics are many, but only three important ones can be mentioned here.

The simplest and easiest way of teaching food economy is to set aside the regular course of making fancy cakes and dainties and substituting a series of lessons on war recipes which are now available. In doing this the manner adopted by the public schools of Jersey City, New Jersey, is highly commendable. Shortly after the declaration of war, the director of the home economics department decided that domestic science teachers should abandon their traditional method of instruction and teach methods of preparing corn meals, dishes of dried fish, dried vegetables and fruits, meat substitutes, etc., and that home application of each lesson taught in the school must be stressed. As a means of carrying out this idea, the following suggestions were made. First, domestic science teachers should allow more discussions in the class so as to fix more firmly in the minds of the pupils the ideas and principles involved in the lesson and to give them perspective upon the problem. Secondly, the boys are asked to attend some of these classes, and, if they have no sisters in these classes, to take the main idea of the lesson home to their mothers. Thirdly, the teachers should discuss generally the national and international situation with reference to the kind of food taught in the lesson; for example, in the case of corn bread, the difficulty of Europeans in eating corn. Fourthly, the teachers are specially requested to make an effort to have the girls report on the home application of the lesson and to impress upon their minds the double value of the lesson to the pupils themselves and their country. All these suggestions may sound very commonplace, yet these are the very things we are likely to forget or ignore.

The second thing which home economics teachers can do in teaching food conservation is to teach their pupils the arts of canning and drying when the perishable food products are abundant in certain seasons of the year. Through the effort of the Department of Agriculture, thousands of canning clubs were organized in the 15 southern states and hundreds of tons of fruits and vegetables were either canned or dried by the club members. This ought to be done in every state of the country. Teachers of home economics, with their technical knowledge and their close contact with the patrons of the public schools, are in a unique position to revive and to give a new meaning to the industries of canning and preserving which have been fast disappearing from modern American homes. Undoubtedly many school systems have attempted the instruction of canning and preserving in their domestic science classes. The most noteworthy cases are the public schools of Newark, New Jersey, and of Los Angeles, California, where many thousands of dollars worth of perishable food products were preserved by the school girls last year. But judging from all the information at my disposal, the public schools in general have not done any more than give a few demonstrations in the classroom. I am quite convinced that this kind of practical work can and ought to be greatly enlarged and extended.

The third way in which home economics teachers can aid in food conservation is to use the school lunch as a project in teaching war cookery. The idea of using the school lunch thus was first worked out in Kansas City about three years ago. It may not be out of place to mention a few of the salient points of the system. The plan as worked out for the elementary school is as follows:

1. Each child has one year of regular cookery before she takes lunch room cookery.

2. Each class is divided so that a lunch room class will be composed of but eight to twelve pupils.

3. Each lunch room has a helper, paid from the lunch room receipts, who does all heavy lifting, washing of lunch room dishes, mashing of potatoes or other routine duties after the pupils have mastered them sufficiently so that they have no further educative value.

4. Menus are varied sufficiently and yet are inclusive enough, so that, as far as possible, cooking may be done in family quantities.

5. A home economics teacher who has charge of a lunch room is required to teach five less classes a week than the

other home economics teachers, because such a teacher is under a heavy strain during the noon hour, a rest period for other teachers.

From these few points of the system we can easily concede that the educational value of lunch room cookery lies in the increased opportunities for the girls to develop their technique, responsibility, initiative, independence, and ability to cooperate in a social project. What has been proved to be very effective in teaching cookery under ordinary circumstances can be made more effective in teaching food economy in war time. Here the ways of eliminating waste, of preparing war-time cookery, and of using substitutes can be practiced by the pupils on a large scale with added interest and enthusiasm. Whatever accomplishments the children make in the lunch room will fill them with pride and a sense of social service.

HELPING THE COMMUNITY TO CONSERVE

In the above pages I have tried to show the possibilities of teaching the children to conserve food in connection with their regular school work. But schools of to-day must not confine themselves to teaching the children only; they must extend their influence to the homes of the children and to the life of the community in this great national movement of food conservation.

Canning work in the community. One of the greatest services that a domestic science teacher can render beyond the four walls of the school, whether she labors in rural or in urban fields, is to organize, direct, and instruct canning work in the community. She can supervise the work of the local canning club. She can teach the housekeepers to rejuvenate their grandmother's method of canning and drying. She can organize special classes during the summer for the mothers and housewives who care to learn this important art. There are a thousand and one ways of rendering her services valuable to the community, if she only has the vision and the interest to do so. The work done by the Rural Home Economics Department of Iowa State Teachers' College, by the Essex County Agricultural School, Massachusetts, and by the public schools in Bernards Township of New Jersey, is most suggestive in this respect.

In Blackhawk County, where the Iowa Teachers' College is situated, the Rural Home Economics Department started a demonstration week in canning last year. In this work three instructors and eight girls from the senior class in domestic science class participated. The school kitchen equipment and laboratories were placed at the disposal of those who were

connected with the demonstration work. As a result of the week's work, thirty-nine demonstrations in the canning of fruits and vegetables, etc., by the cold pack method were given. An aggregate number of 1720 persons was in attendance. Twenty-six canning clubs, principally of the "mother-daughter" type and comprising a total membership of 482 persons, were formed, each with its local leader.

In Essex county, Mass., the Agricultural School held a canning school during the first week of September, 1916, to give instruction to housekeepers and local leaders of canning clubs of that county. For this purpose, a temporary wooden building was erected adjacent to the Home Economics building. This was screened and equipped with seven tables, each accommodating eight people; two ranges, two oil stoves, one out-door canner stove. The members of the Agricultural School staff, together with outside speakers invited by the school, took charge of the program of instruction. Despite the disagreeable weather of the week there was an average attendance of 79 members each day for the five days. The practical work done by the members of the school was the canning of fruits and vegetables, the making of jelly, fruit butters, marmalades, and conserves.

In Bernards Township, New Jersey, an experiment in community canning was very successful. In each school in that county an experienced teacher volunteered to supervise the work of preserving performed by high school girls of the neighborhood. The fruits and vegetables were sold by the townspeople to the school or brought by them to be conserved by cooperative canning for their own use in the future. The whole work has proved to be beneficial to teachers, pupils, and to the community in general.

Food Demonstrations... Another important service which the public schools can render is to arrange demonstrations of war-time cookery for the parents, either in the school kitchens or through some other means. In England, there have been "open days" in the schools on which parents may be admitted to receive instruction with their children in the economical cooking of the food which, according to the food controller's instructions, is likely to be available for general consumption. This is the most sensible thing for the school to do. If the school is to be the social center of the community, I can see no reason why the parents should not be allowed to study such important functions as home making and food preparing with their daughters in the same classroom.

Similar actions have been taken by some city school systems in this country. The most typical case of this kind is the

action taken by the school authorities of Jersey City, New Jersey. In an effort to secure direct contact with the mothers and housewives of the city, the superintendent of schools issued the following letter.

To Mothers of Children in Jersey City Schools:

"The President's recent Proclamation has these words regarding food economy as a great patriotic duty:

'Let me suggest that every housewife who practices strict economy puts herself in the ranks of those who serve the nation. This is the time for America to correct her unpardonable fault of wastefulness and extravagance. Let every man and every woman assume the duty of careful, provident use and expenditure as a public duty, as a dictate of patriotism which no one can now expect ever to be excused or forgiven for ignoring.'

"The world's food supply is short this year. Every pound of wheat that one can avoid using, every ounce of fat that one can use instead of throwing away, is just so much added to the food supply of a world that is going to need it sorely. And no matter whether one 'can afford it' or not.

"The teachers of domestic science in our schools have, of course, given much study to this very subject. At present they are making a very special effort to keep in touch with the newest suggestions from the Federal Bureau of Agriculture, the New York Food Supply Committee and such sources, and to teach their pupils that:

"Many of the inexpensive foods are the most nutritious.

"Preparation of inexpensive foods may be varied in many ways to make them appetizing.

"We would urge, in behalf of the general welfare, that if you have a daughter in any of these classes you will make a serious trial in your own family of the suggestions which we hope she is bringing home to you.

"If none of your children has this work, would you yourself be interested to come to the school on one or more afternoons from 3 to 4:30 P. M. for a study of these same problems? If so, will you please fill out blank attached below and return it as soon as possible to the principal of the school?"

It was reported that as a result of this appeal many special classes have been formed for the parents.

In addition to these devices of drawing parents to the school, the school can also move itself to accommodate the parents. In London county, England, the responsible mistresses of the evening schools and the domestic economy staff employed in these schools have organized traveling kitchens in 29 boroughs within the county. These traveling kitchens possess all the necessary apparatus by which the simplest forms of cookery can be demonstrated to 100 or 200 people. According to the report of Sir Robert Blair of the London County Council, we find that these demonstrations were well attended and many people in small villages have thus been given an opportunity to learn from experts methods of making palatable the food products which were less understood and less used before.

In another county of England, a domestic science lecturer arranged an experimental course of lectures and demonstrations on economical cookery, and equipped with necessary utensils a traveling kitchen at a cost of \$100. She covered each of the larger villages in the area selected, spending one day in each place. The morning hours were spent for traveling. In the afternoons exhibitions of wheat flour substitutes were arranged and demonstrations given. She also gave talks on bee-keeping, horticulture, fruit bottling, and so on. In the evening she gave a cooking demonstration.²

In Pennsylvania a very ingenious device was made by the Food Supply Committee of that state's Committee of Public Safety, to present to the people, in a striking and attractive form the principal needs and methods of food conservation. Borrowing from the experience of agricultural colleges and state departments of agriculture, the committee secured the cooperation of the Pennsylvania Railroad Company in starting a food demonstration train which was scheduled to reach more particularly the smaller towns and cities. The whole train was devoted to the demonstration of canning and drying, of using wheat substitutes, and of using vegetable fats in place of butter and lard. It was also shown that if every one in Pennsylvania saved one ounce of sugar, one ounce of meat, two ounces of wheat flour, and one-third ounce of fat daily, then in one week enough food would be saved to supply the draft army of the state, 60,859 men, with sugar for seven months, meat for two months, and flour for five months, and a large quantity of ammunition containing glycerine manufactured from the fat. The story was depicted with miniature warehouse, army supply wagon and an encampment representing the war home of the Pennsylvania draft quota. As a result of this effort, fifty thousand people in all have attended the demonstrations in three months.

This "moving school of food conservation," as it was called, was not started by the public school, nor will it be possible for any individual school to undertake such an activity on a large scale. But the schools can give very valuable help to such enterprise. For instance, the preliminary preparation for the arrival of the train and the organization of follow-up work after it leaves are all within the ability of the school.

Schools as Center of Publicity. Another important use of schools and school population in food conservation campaign is the distribution of government pamphlets, information cards and the pledge-card canvass, etc. Typical work along this line may be said to have been done by the public schools in

²Dean. *Our Schools in War Time and After.* p. 124.

Los Angeles. They have distributed 50,000 copies of a pamphlet prepared by the Home Economics Department, containing very practical receipts written in simple language and suitable of preparation in homes, even the poorest. In addition to this the Department continued a periodic distribution of weekly recipes on mimeographed sheets, the total number of which is now in excess of half a million. The schools also undertook the sale of a more elaborate, yet inexpensive publication, the *Liberty Cook Book*, compiled by members of the National Council of Defense and published by the City Teachers Club. There were 27,000 copies of this book sold. The net profit of \$300 derived from the sale was devoted to the work of the Red Cross. Beside this thousands of food conservation cards have been given to the children to be taken home and returned by them with the signatures of their parents. I believe activities of this kind should be encouraged and made more general throughout the country.

Other Miscellaneous Activities. Beside the organization of community canning work, food demonstrations, and dissemination of information as I have mentioned above, there are several other activities which may be mentioned in passing.

In Germany school children have been enlisted in the work of collecting field and forest edible products since the war began. Children were engaged in the work of gleanings and in the summer of 1915 the gleanings amounted to approximately \$50,000. On account of the scarcity of fats, the children were made to gather acorns, horse-chestnuts, and seeds containing oil. In August of 1916 children were employed in the extraction from trees in the state forests of resin which was needed chiefly for the paper industry; and in the same season school children collected enormous quantities of kernels of cherries, plums, and apricots for oil extraction.

In America, the foods in the forest are of enormous variety and of immense quantity. Beside the numerous edible mushrooms, roots, fruits of shrubs, and smaller plants, the trees of the forests afford a large variety of edibles which are highly worthy of gathering and conserving. The kernels of beech-nuts, butternuts, walnuts, chestnuts and chinkapins, hazelnuts, and several kinds of hickory nuts, including pecans, are not only toothsome but highly nutritious and are used by vegetarians to replace meat. Acorns are commonly thought to be fit only for feeding hogs, but many kinds can be made edible and nourishing for people as well. The kernels of the buckeye can also be dried, powdered, and by filtration freed of the poison which they contain when raw and made into palatable food. Several varieties of wild crab-apples can be made into deli-

cious jellies. It has been reported that some of the largest, which attain the size of small apples, are more or less abundant throughout eastern North Carolina. These and many other kinds of fruits and nuts are the gifts of nature. If the service of the school children be utilized in collecting and conserving them, the amount of food thus obtained may easily surpass our wildest imagination.

The next school activity which is worthy of noticing is the "Jar Day" instituted in Berkeley, California, last year. In this jar day the school children of the entire city went out and collected every discarded and undesired jar from different homes. These were cleaned and sold and the money was turned into a "Service Fund." Many of these jars were used for canning purpose and filled with surplus vegetables to be used for the poor in the winter. This and many other similar activities can be instituted by every city in this country.

The third creditable activity I wish to mention is the food conservation drive in the Central High School, Omaha, Nebraska. The drive lasted three days and was in charge of a committee consisting of a faculty chairman, a student chairman, and four student members—one representative from each class. On the first day of the drive attention was focused on advertising. For this purpose posters furnished by the art classes and blackboard printing were used. The common slogan featured in the advertising was

"All you need is self-denial
FOOD CONSERVATION
Give it a Trial."

On the second day, girls wearing cooking aprons and Food Administration caps, distributed in the lunch room "Note Book Cards" modeled after the regulation home cards.

On the third day, a pledge-card calling for the observance each week of 21 wasteless meals, 7 wheatless meals, 10 meatless meals, 2 candyless days, and 1 ice-creamless day was given to every pupil. Short speeches were given in each room by some student and the members of the class were asked to sign the pledge cards on the promise that the pledge would be strictly observed.

The result of this campaign was very satisfactory. A great many of the pledge cards were signed, averaging 100 per cent in some rooms.

A campaign like this is one of the many ways of enlisting the cooperation of the pupils in food conservation. But such a drive should always be followed by some follow-up work,

so that the patriotic spirit of the pupils shall not end with the signing of the cards or shortly after.

CONCLUSION

In teaching the public with regard to food problems, food values, and practices of food economy, public schools are in a unique position to serve the country. They can teach the children to conserve in connection with regular school subjects and through the children they may indirectly enlighten the public. They can help the community to conserve in a great many ways, and thus fulfill their mission as social centers of the community. These are the proper things for the school to do, war or no war. To-day we teach food conservation as a patriotic necessity, but we must continue to do it as an educational necessity of to-morrow when this great world conflict is over.

THE PREPARATION OF THE TEACHER OF PHYSICAL TRAINING¹

THOMAS A. STOREY.

We, the people of the State of New York, are to-day in possession of the greatest opportunity for the effective health education of school children that has ever been given a State by its lawmakers. There has never been a time in the history of intelligent thought in the educational world when school people did not realize the importance of health in the educational affairs of the child. But though school people have talked long and though they have talked earnestly, our actual progress in physical training has been slight. We have not put our thought, our scientific knowledge, or our ideals of health education into practical application. The obstacles to such application have been many.

But to-day, thanks to the almost unanimous vote of the legislature of 1916, the Regents of the University of the State of New York are under the welcome obligation to enforce the operation of a physical training program—a program in health education and health habits—in every elementary and secondary school of the State, public and private, and for every child in those schools, girl or boy, eight years of age or older. This, I repeat, is the greatest opportunity for the health education of school children that has ever been given a State by its lawmakers.

But it is one thing to see an opportunity and quite another thing to use it. We all see this opportunity. The legislature saw it. The Commission which the legislature created saw it. The Regents of the University of the State of New York, the State Department of Education, the school superintendents, school principals and school teachers—all see it. How will we use it?

The legislature saw—and made a law. The Commission saw—and recommended a "General Plan" and a detailed and suggestive syllabus. The Regents saw—and adopted that general plan and syllabus and made them their own. The Plan and Syllabus are now the rules and regulations of the Regents of the University of the State of New York. The

¹Presented at Cornell University, February 21, 1918.

State Department of Education and the other school people of the State see the opportunity. They are now placing the general plan and syllabus into operation.

It is right here that the difficult difference between seeing this opportunity and using this opportunity impresses itself. These difficulties are many. Not one of them is insurmountable. We may have to wait here and there, but it is possible for every school to make some immediate progress in the use of this opportunity. The final and full realization may be long delayed, but it is worth working for, and it is worth hard work, and it is worth an immediate beginning.

It is hard to change old and established schedules. We are reluctant to make the school day longer. Our older buildings are not equipped for gymnastic drills or recreational play. Many of our schools have no playground. The schedule and supervisory complications are great in the congested school. The teacher in the one-room school, with ten children—six girls and four boys, the youngest six years old and the oldest seventeen, has a difficult problem. These difficulties, however, ought not to be permanently obstructive. They are worth only a temporary delay. Not one of them merits consideration as an argument against the health care of school children. These difficulties are largely due to the fact that we have been concerned more with subjects, more with courses of study, with schedules, with buildings, and with equipments, than with children. This program of health education centers about the child. If its operation requires changes in schedules, or buildings, or equipment, or what not, those changes should be made as soon as it is reasonably possible to do so.

The most important difficulty that we face arises from a general lack of training among the regular teachers and from a lack of a sufficient number of specially trained teachers. In my judgment, this lack of training is one of the most serious problems that confront us. If we are to see results from this plan for the health education of school children; if we are to reduce sickness and death in our schools; if we are to produce a longer lived, as well as a better educated citizen, we must place the operation of this program in the hands of trained teachers, whose expert knowledge will be tactfully and sympathetically applied for the production of better health habits from the pupil in the one-room school to the pupil in the metropolitan institution.

The nature of the training which should be secured by our teachers is indicated on the one hand by the program of physical training outlined in the General Plan and elaborated in the syllabus of the Regents. It will be indicated on the

other hand by the special local school and community conditions for which the teacher must be prepared if he is to adapt his teaching to the peculiar needs of the district to which he goes.

In general, it may be said that the teacher in training should receive physical training for three major purposes:

First: He should acquire health information and health habits, whereby he may so train his own physical self as to secure the best possible organic service.

Second: He should be instructed concerning the main facts of school hygiene, so that he may wisely affect such school conditions as may be open to his influence when he begins teaching.

Third: He should be taught how to guide and instruct school children, so that they may acquire and use a practical health education and profit fully from all the important character building and socially developing lessons that are so intimately a part of certain phases of physical training.

I should say, then, that every teacher in training should receive, first, regular, wise, and reasonable health examinations and supervision; second, a course in school hygiene; third, a course covering the care of the body and the facts of personal and general hygiene; and fourth, regular physical exercise, made up of those elements of disciplinary drill and recreational exercise that are known to have real health values.

And every teacher in training should receive such practical and expert instruction as will enable him to take an effective teaching part in the routine physical training program that belongs to the regular class room and to the play period, such as class inspections, talks on the care of the body and the facts of hygiene, setting-up drills, and the various play activities.

The special teacher of physical training should in addition be taught in some detail the important reasons for the health examination and health supervision of school children. He should be more intimately acquainted with the sciences that go into personal and general hygiene, such as anatomy, physiology, and bacteriology, and his work in school hygiene should be more heavily emphasized than that of the regular teachers. He should be given practical experience, under expert supervision, in teaching setting-up drills, gymnastics, marching, games, group dancing, and school athletics.

And he should be given special opportunity to understand and appreciate the possibilities of correlating the school with the home and with the community through the medium of recreational activities, athletic sports, and community social

affairs. Too much emphasis can hardly be placed upon the importance of developing vision, initiative, and capacity for the establishment and maintenance of the relationship between the school and the home and the community.

There can be no doubt that the success of this program depends upon efficient teaching. We must arrange as rapidly as possible for such training in our normal schools, colleges and other schools in which teachers are prepared for their work. And we must arrange for a reasonably uniform plan for the training of special teachers of physical training. We must make haste slowly. It would be unfortunate if great differences in standards and content should appear in the curriculums of the various training schools of the State.

It is to be hoped that physical training will attract many capable men and women as teachers. Those already actively engaged in teaching may find opportunity in various ways to fit themselves to meet the demands which the physical training syllabus makes on the regular teacher. Perhaps the most useful source of such training will be found in the summer school. The colleges, normal schools, training schools, and other centers in which teachers are trained ought within the reasonable future have developed courses for the education of the regular teacher and the special teacher of physical training. In the course of time every teacher will be prepared for those phases of physical training that fall to the regular classroom teacher, and we will have available a sufficient number of special teachers to meet the demand.

When I view this future, I am filled with enthusiasm. Our fifty-seven thousand teachers and our two million school children offer health educational possibilities that are too big to measure and too large to understand. If the teachers of this State will influence our boys and girls so that health habits will become common in school, home, and community, we shall soon have men and women in our communities and in our homes who recognize not only their health obligations to their kith and kin, but to their neighbors; men and women with social minds; men and women that deserve to command, because they have learned how to obey; and we shall have more added millions of years of potential productive healthy citizenship than I know how to estimate.

If the teacher sows health habits in the minds, muscles, and nerves of school children, the harvest will be gathered from a great increase in every productive activity of manhood and womanhood through all the years of their consequent longer lives.

I hope you may be party to this project; that you may

have a share in this service; that you will have something real to do with this plan for the acquisition and conservation of human health, human happiness, and human productivity.

I would rather be a helper in this project; I'd rather have a share in this service; I'd rather have had something real to do with the acquisition and conservation of a healthier, happier, more productive, and a longer-lived world community of men and women than to have been a victor in the greatest commercial or military battle or the biggest political campaign the world has ever known. Today, more than ever before, do we need such men and such women.

AESTHETIC APPRECIATION OF PICTURES BY CHILDREN

By RUDOLF PINTNER, Ohio State University.

A number of children ranging in age from six to fourteen were asked to arrange six pictures in the order of their preference, beginning with the one they thought most beautiful.¹ The six pictures were six different executions of the same theme, differing only in accuracy of drawing and perspective and in coloring. Number 1 was a colored print of a picture, entitled "The Mill," and the other five were water-color copies of this. Number 2 was a very good copy of the original. Numbers 3 and 4 were slightly inferior to number 2, differing from each other in color tone rather than anything else. Number 4 was more subdued than number 3. The artist herself ranked number 3 as superior to number 4. Number 5 was distinctly inferior to the preceding in drawing, and was characterized by rather brilliant colors, a bright pink and a bright yellow being very conspicuous. Number 6 was drawn very badly and the coloring was very crude. The colors were not, however, as bright as those of number 5.

The children were very interested in the experiment and experienced no difficulty in coming to a decision. A group of 83 university students were also asked to arrange the pictures. Among these adults some hesitation in making a decision was occasionally shown.

At all ages a great diversity of preference was manifest. The distributions of the rankings for each picture for each age are too lengthy to give here. It may be sufficient to note that most of the pictures were given every possible ranking at almost all ages. This is equally true of the adults. Picture number 6, the worst picture, was given first place by at least one child at every age, with the exception of ages 10 and 12. Two adults also ranked this picture first. An exception to this wide scattering of ranks, at least in the upper ages, might be seen with picture number 1, the best picture. At ages 6, 10, 11, 12, 13, and 14 this picture was not ranked last by

¹ The writer is indebted to his wife for securing the data for this article and to his sister, Miss Dora Pintner, for painting the necessary pictures.

any individual. It was, however, given last place by one adult.

The average of the ranks accorded each picture at each age is shown in Table I. The table is to be read as follows: the

TABLE I. AVERAGE RANK OF PICTURES

Age.	N.	PICTURE No.					
		1	2	3	4	5	6
6	15	3.0	4.1	3.7	3.6	2.7	3.9
7	23	2.3	4.1	4.2	4.0	2.5	3.8
8	27	2.6	3.1	4.1	3.9	3.0	4.1
9	18	2.0	3.9	4.1	3.3	3.2	4.3
10	18	1.3	3.1	4.0	3.3	4.8	4.7
11	27	2.1	3.6	3.4	3.8	3.9	4.6
12	26	1.2	3.2	3.7	3.7	4.7	4.9
13	13	1.5	3.1	3.5	3.4	4.5	5.0
14	11	1.6	3.1	3.5	3.3	5.2	4.4
Adult	83	1.4	2.6	3.7	3.5	4.4	5.2

average of the ranks assigned by 15 six-year-olds to picture number 1 was 3.0, to picture number 2 it was 4.1, and so on. At age seven the average rank for 23 children for picture number 1 was 2.3, and so on for the other ages. It will be noted that there is not very much difference between the average ranks for the six pictures at age six, indicating little agreement among the children as to their preferences. As we proceed to the higher ages, the difference between the average ranks becomes gradually more marked, indicating a more general agreement among the individuals as to the preferred order of rank. Aesthetic judgment would seem to become more uniform as the child grows older. He is gradually learning to conform to the aesthetic standards of his environment. It would seem from this experiment that this conformity begins surprisingly early in life and would seem to be effected at a comparatively early age.

This may be seen from Table II, which shows the first,

TABLE II. PICTURES ARRANGED ACCORDING TO ORDER OF CHOICE AT EACH AGE

Age.	CHOICE					
	1st.	2nd.	3rd.	4th.	5th.	6th.
6	5	1	4	3	6	2
7	1	5	6	4	2	3
8	1	5	2	4	3	6
9	1	5	4	2	3	6
10	1	2	4	3	6	5
11	1	3	2	4	5	6
12	1	2	4	3	5	6
13	1	2	4	3	5	6
14	1	2	4	3	6	5
Adult	1	2	4	3	5	6

second, third, fourth, fifth and sixth choices for each age, as determined by the average rank of each picture. The picture, which on the average ranked highest for the six-year-olds, was number 5. This was followed by numbers 1, 4, 3, 6 and 2 in the order named. A glance at the table shows us that picture number 1 was given first choice at every age, except age six, where it took second place. This would seem to show that children, even as young as seven, on the whole have learned to recognize as most beautiful what is so designated by the adult taste. This tendency is also operative, though not dominant, at age six, where we note that picture number 1 takes second place. Picture number 5 was characterized by bright pink and yellow, and is ranked first by the six-year-olds, presumably because of the coloring. It is interesting to note how picture number 5 struggles to retain a high place, and succeeds in securing second place at ages 7, 8, and 9, but ultimately falls to fifth or sixth place at all succeeding ages. There are among the seven, eight and nine-year-olds quite a number of children who still rank as most beautiful the picture with the bright colors. After age nine there are very few children who rank number 5 highly. Conformity to conventional standards in this regard evidently develops rapidly from age nine onwards.

It is interesting to note how picture number 2 rises from last place at age six to second place at age ten, and from age twelve onwards retains the second place continually. Picture number 6 is given fifth or sixth place at all ages, with the exception of age seven, where it actually is placed third.

As we have already stated, there was very little difference between pictures 3 and 4, the artist inclining to rank 3 superior to 4. At ages twelve, thirteen, fourteen and adult 4 is placed higher than 3. If 3 is superior to 4 according to the canons of fine art, then we may conclude that our older children and adults have not yet reached the highest possible development in their aesthetic taste.

In conclusion, we may say that as far as this experiment goes, it would seem to indicate a very early conformity of young children to the conventional standards of aesthetic judgment of pictures. There are indications that this conformity is developed gradually and that for pictures of the type with which this experiment deals, it is fairly well developed in the majority of children at age seven and about completely developed in the majority of children at age ten.

CLARK LIBRARY WAR COLLECTION

By LOUIS N. WILSON, Librarian, Clark University.

When the great war broke out, in August, 1914, President Hall suggested that the Library should make an effort to collect as much printed material as possible upon the subject. This was done at once, and later it was decided to add pictorial material as well as posters and proclamations.

The collection at present consists of

Books and pamphlets.....	5,500
Posters and proclamations.....	2,400
Pictures and maps.....	2,820
	10,720

The books and pamphlets have been classified in accordance with a war classification drawn up by Miss Helen J. Elliot of the Library staff, who has for the past two years devoted all her time to this collection.

Each pamphlet is bound separately and treated as a book.

Miss Mabel O. Boice has devoted a good deal of her time to making cards for the posters and pictures; these we expect to classify during the summer according to a system now under consideration.

These war posters have been shown at various times in Worcester, notably at the Art Museum in April, 1917, and again, on a larger scale, at the rooms of the American Fund for French Wounded on October 11-12, when \$170 was realized for that most worthy war work. Selected small collections have been lent for exhibition at the Boston Athenaeum; Waltham Public Library; Leicester Public Library and the Southbridge Women's Club. The Librarian has given talks at various times on war posters, illustrated by selected specimens.

The collection of books and pamphlets has been used quite extensively by professors and students. We have lent nearly 300 volumes at different times to the officers at Camp Devens and have also lent books to others engaged in war work, as the Bureau of Standards, Washington, D. C.; American Optical Co., Southbridge, Mass.; Curtis Airplane Co., Garden City, L. I.; U. S. Signal Corps, Washington, D. C., and we have

sent a copy of Professor A. G. Webster's book on Dynamics to the U. S. Signal Corps in France.

Some of the subjects for which we have laid out special books for study are:

Argot; Balkan States and the War; Burial of the Dead (mourning); Camouflage; Censorship; Economic Aspects and Results of the War; Education After the War; Education as Affected by the War; Food Supply; German Colonies in the Pacific; German School Literature on the War (militaristic tendency of school text-books); German Theologians and the War; Insignia and Flags; Medals; Nationality; Patriotism; Pro-German Propaganda in War Literature; Psychology of the Soldier; Psychology of War; Re-education of Disabled Soldiers; Russia and the War; Russian Revolution; Shell Shock; War Stamps; Trench Papers; War Libraries and Museums; War Songs and Music.

At a meeting of the American Library Institute at Atlantic City, in February, the librarian advocated the establishment of a National War Library and Museum in Washington. The suggestion received the hearty endorsement of the Institute and the matter has recently been laid before President Wilson.

In order to help in some practical way the Library issued a War Savings Stamp slip to be inserted in the books as taken out from the Library. The design was evidently a success as the National War Savings Committee has ordered 200,000 of the slips for general distribution.

BOOK NOTES

Education, selective, specific, compensatory. By MICHAEL WEST. With a foreword by Hon. Mr. W. W. HORNELL. New York, Longmans, Green & Co., 1917. 223 p.

The writer interprets selective education as better based not upon the individual choice of the pupils but upon the judgment of his instructors. He believes the former method has wrought chaos and insists that the latter is a more effective way of getting a boy fitted to his career. As to the second type of education, viz., the specific, the essential point is that it must be compulsory because one must forego one's larger hopes. Nobody wants to be trained to be what he is, but if he is educated he thinks it must make him what he is not. The young are hopeful, parents are optimists, so they do not want to improve their sphere but to rise out of it. But national efficiency means every man must be perfect in his sphere. In industrial countries there must be specialization and that involves concession of individual liberties. As to the third or compensatory type, there is no education save the influence of man on man. This theory may help but does not solve the social problem in itself. As to political ideas, we must educate for the future and the things at our feet must be out of focus. We must educate for development and drop retrospection. We must train for a selective empire. The writer finds his ideas pretty well embodied in the system of Bengal.

The school as a social institution; an introduction to the study of social education. By CHARLES L. ROBBINS. Boston, Allyn and Bacon (c. 1918). 470 p.

The movement to which this book is devoted means a great expansion of the sphere of education and of the school, and here we have an attempt to describe in a practical way, suitable for teachers, this new expansive movement. It traces the tendency through the modern history of education, and then attempts to describe the social ideals of the school, such as temperance, freedom, responsibility, initiative, co-operation, justice. The third chapter deals with social conditions which control, such as the relations to the church, philanthropy, societies, business, civil government, tradition and custom, public opinion, special classes. Then we come to the reaction of the school upon society, its effects in advancing learning, in specialization, industry, etc., the school as a protective, selective, guiding, moralizing agency, as a community center, as a social problem, and then we have the course of study and method.

The cadet manual; official handbook for high school volunteers of the United States. By MAJOR E. Z. STEEVER III and MAJOR J. L. FRINK. Philadelphia, J. B. Lippincott Co. (c. 1918). 317 p.

The preface of this book tells us that universal training is the one safe foundation upon which the national defense of democracy may be reared. This training, although universal, must be without any hint of militarism, for it takes the people as a whole and not as a class. The obligation of defense is simply the acme of civic obligation and its military features are well calculated to impress the juven-

ile mind. It gives a more virile manhood as well as provides trained defenders. We are by no means a fit nation. Training gives great access of citizenship. It increases a sense of responsibility and teamwork and the spirit of it is that of the game or team. The work is timely and interesting.

The influence of age and experience on correlations concerned with mental tests. By EDWARD SAFFORD JONES. Baltimore, Warwick and York, 1917. 89 p.

The author finds a marked fidelity to intellectual types of individuals through the adolescent period of growth. The amount of school work completed also correlates well with average mental ability. In general speed of learning is a highly reliable measurement for testing specific capacity in any particular line, though workers who are rapid at one time may be more or less so years later. Immediate memory is correlated with the amount of school work completed. This study verifies the view that a well-rounded training of an individual is likely to place his general intellectual rank for years to come. Tested capacities may vary greatly in stability. Schools must eventually adopt mental tests for all.

The psychology of special disability in spelling. By LETA S. HOLLINGWORTH, assisted by C. AMELIA WINFORD. New York, Teachers College, 1918. 105 p.

The authors conclude that spelling disability does not necessarily imply defective intelligence. Ability to spell is not a unit trait but is an ensemble of traits less simple than had been thought before. The large number of independent factors suggests greater variability among individuals, which we find in fact. Extreme cases differ very much from each other in degree because these factors differ. Some of the poorest spellers may have original capacity and there are a few whose disability is so great they cannot learn to spell.

Experimental tests of mathematical ability and their prognostic value. By AGNES LOW ROGERS. New York, Teachers College, 1918. 118 p.

The writer claims that her sextet of tests provides a quick means of diagnosing the mathematical intelligence of pupils in the third year of the junior high school, with a view to improving the classification of students in the high school by eliminating from the mathematical classes those unfit for further training in this line, and selecting those capable of more rapid progress.

The mythology of all races. Edited by LOUIS HERBERT GRAY. Volume XII, *Egyptian*. By W. MAX MÜLLER. *Indo-Chinese*. By SIR JAMES GEORGE SCOTT. Boston, Marshall Jones Co., 1918. 450 p.

Here we have the twelfth volume of this very comprehensive work which is devoted to Egypt, India and China. The standard of the other volumes seems to be well maintained, the illustrations are copious, a number of them are colored, and while the body of the book is readable, the copious notes at the end are designed to meet the needs of the scholar and expert.

School and home gardening. By KARY CADMUS DAVIS. Philadelphia, J. B. Lippincott Co. (c. 1918). 353 p.

This is meant to represent the school garden movement. A few of the chapters will signify sufficiently the scope of the book. First

there is the outlook, beginnings and aims, vacant lots, etc.; then the operations and exercises, planning the garden, the tools, soil, light, improvements, training, fertilization, plots, etc.; while part three is devoted to club leaders and teachers. The book is illustrated with some 120 cuts.

The melodic method in school music. By DAVID C. TAYLOR. New York, MacMillan Co., 1918. 171 p.

The thoughtful and especially the psychological educator will have great sympathy with the view that stresses the importance of melody and which also believes that the pupil should hear more music and even the phonograph should have a larger place. Most pupils will hear more music than they will produce and hence this type of musical education should take the place of the hypermethodic note-drill that has hitherto prevailed.

Psychological tests, a bibliography. Supplement to Jan. 1, 1918. By GEORGIE A. RUGER. Bureau of Educational Experiments, 16 West Eighth Street, New York. p. 79-111.

This is a very valuable list of books and articles relating to mental tests. The larger part of the references are devoted to mental tests other than the Binet Simon scale. Brief notes in regard to the contents of the different articles add greatly to the value of the bibliography.

Amalia. By JOSÉ MÁRMOL. Edited by AMES HAVEN CORLEY. New York, MacMillan Co., 1918. 300 p.

This is an attractive edition of a well-known Spanish text.

The Stanford revision and extension of the Binet-Simon scale for measuring intelligence. By LEWIS M. TERMAN and others. Baltimore, Warwick and York, 1917. 179 p.

The picture completion test. By RUDOLF PINTNER and MARGARET M. ANDERSON. Baltimore, Warwick and York, 1917. 101 p.

The outer courts; a waking dream. By M. AGNES FOX. With a foreword by The Right Reverend C. H. BRENT. New York, Longmans, Green and Co., 1917. 87 p.

The use of the kindergarten gifts. By GRACE FULMER. Boston, Houghton Mifflin Co. (c. 1918). 232 p.

The Fox series of readers. By FLORENCE C. FOX.

The Fox primer from Mother Goose; a phonetic reader. 170 p.

First reader. 156 p.

Second reader. 170 p.

Teacher's manual. 62 p.

New York, G. P. Putnam's Sons, 1918.

Memory and the learning process. By DARWIN OLIVER LYON. Baltimore, Warwick and York, 1917. 184 p.

Training pupils to study. By H. B. WILSON. Baltimore, Warwick and York, 1917. 72 p.

Lesson plans in fourth grade history. By M. ANNIE GRACE, EMMA C. MONROE, and others. Baltimore, Warwick and York, 1917. 155 p.

Real stories from Baltimore County history; data obtained by the teachers and children of Baltimore Country (Maryland) schools. Revised and adapted by ISOBEL DAVIDSON. Baltimore, Warwick and York, 1917. 282 p.

Annual report of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the institution for the year ending June 30, 1916. Washington, Government Printing Office, 1917. 607 p.

War service of the American Library Association. Described by THEODORE WESLEY KOCH. Washington, D. C., Library of Congress, 1918. 35 p.